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Clinical
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Prescribed by the Profession since 1878.

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BOVININE.

"PREPARED ON SOUND SCIENTIFIC PRINCIPLES."

From The London Lancet.

Bovinine is nothing less than the consummate product of the nutritive process in the living body. It is not to be confounded with mere nutrients of foods, however elaborated artificially, since it outclasses them by at least three stages of development possible only in the living body —assimilation, composition, and vitalization—already completed. Hence, among the mere "foods," there can be nothing so completely fitted to the wants of humanity as Bovinine. It includes, of necessity, all the nutritive principles which enter into the component parts of the human body, and being already perfect and perfectly preserved, needs no further elaboration in the system, but goes directly to every part, leaving the stomach entirely at rest, as it so often absolutely needs to be left, and at the same time keeping up a perfect nutrition of the entire body.

Bovinine is Nature's Vital Essence itself, supplying, in the very proportions and preparations of Nature, the proper elements of the vegetable, animal and mineral kingdoms, perfectly combined and compounded, all ready for absorption into the veins and tissues. More than this: in Bovinine the vital corpuscles are preserved intact, and retain all their oxygen-carrying properties. No one who can use a microscope should rest in any doubt on this point.

Thus in Bovinine is found all that is needed for the perfect nutrition, and vitalization as well, of the entire animal organism. It is, therefore, indicated in all diseased conditions of the body and mind.

There is no condition of the stomach or system, so delicate, debilitated, or sensitive, but that Bovinine may be administered happily and successfully, with due regard to proper dosage, to the neutralization of antagonisms, and to the proper avenues to be chosen, according to the condition of the case.

Hand book of haematherapy with clinical reports, compiled from

For title see back cover

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ANNOUNCEMENT.

THE BOVININE COMPANY take pride and pleasure in announcing to the medical profession that for the past six years Dr. Biggs has carried on at his clinics and hospital extensive experiments to demonstrate clinically the value of Bovinine. The question has been frequently asked by physicians: "Why does Dr. Biggs' name so frequently appear?" Dr. Biggs is a scientist and surgeon of reputation and exactly fitted in every detail for this experimental work. The COMPANY has no desire to conceal the fact that the Doctor is their salaried scientist. His entire time is given up to this experimental work; consequently, his opinions, of necessity, must be of greater value than one who may use Bovinine in a few isolated cases

The COMPANY has arranged to continue the Doctor's services indefinitely, and all advances made in the application of Bovinine to all diseased processes will be reported from time to time, and as necessity demands the Handbook on Hæmatherapy will be revised under the heading of a new edition.

BOSTON MEDICAL
MAY 13 1911
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WHAT IS HÆMATHERAPY?

It is a treatment which consists in opposing to a condition of disease the very power—good and sufficient blood—that would naturally prevent it; that would still cure it spontaneously; and that actually does cure it spontaneously, wherever the blood making work of the system is perfectly efficient; and therefore also *will* cure it, if a deficiency of the vital element be supplied from without, under proper medical treatment.

That Blood is such a power as here described, is an undisputed physiological fact. Its transmission from one animated organism to another, for the purpose of supplying a defect in the latter, is the substance of the Blood Treatment; and How to Do this, in different cases, is the form or description of the same, as set forth by clinical descriptions in great variety, throughout the following pages.

It has been abundantly demonstrated in practice that blood can be borrowed for us from the most vigorous animals, and supplied to our deficiency either of quantity or of vital power, by either of three modes of conveyance according to convenience or necessity, viz: by subcutaneous injection into the circulation; by direct absorption into the system through the sides of the alimentary canal, upper or lower; or by topical application to any exposed or denuded tissue whatever, to which the native circulation of the patient fails to afford healthy sustenance and protection, whether through insufficiency, paucity and sickliness or organic cells, or lack of vital and vitalizing energy That this is literally borrowing life, is only another and more startling way of stating the fact, a fact emphasized in a most remarkable way by the observations of Dr. Brakenridge of Edinburgh, who found that the vital cells of injected bood not only reinforced the circulation by their own quantity and quality, but also revitalized and enlarged the debilitated cells of the patient, and excited an immediate proliferation of new cells.

WHAT IS BLOOD?

In the words of Sir William Hunter, the blood is "a highly organized living tissue;" unlike all other organs, not only living, but livegiving; a loose tissue, as a concourse of organized corpuscles in a nutritious fluid; but none the less a coherent and constant unit, though in perpetual flux and change like other organs, only changing more rapidly and freely by reason of its all-distributive function; incomparably the most active as well as essential organ in the body, carrying vitality and vitalized sustenance to every cell of brain, nerve, muscle, bone or organ in the system. Hence it has been properly designated the All-organ of life; since it alone, so far as we know, imparts life (derived man knows not how or whence); while all the other organs called vital depend on it for life as well as nourishment, and in return, are wholly employed in serving it, either as feeders, carriers, scavengers, or in receiving and transposing its chemical elements for various uses. Thus, the heart is called a vital organ only because it pumps the blood forth on its vital errand; the lungs because they blow oxygen on the blood fire, and blow off its smoke; the stomach and entire digestive apparatus because they purvey and cook for the blood; the liver and kidneys because they secrete, excrete, wash and scavenge from the blood; the brain itself, only because it is the storage-battery of vital or rather nervous force, accumulated from the blood, and is charged for the propulsion of the machinery of the living workshop whose essential product is evermore "Blood, which is the life thereof."

The production of blood, then, is nothing more or less than the propagation of life in its fundamental organic forms or units; a propagation, too, which is carried on entirely in and by the blood, as the only depository of life, and therefore the only thing in Nature by which life is or can be propagated, or communicated from one organism to another. At all events, so far as can now be affirmed, or need be considered, the blood is the only vital organ that we know; the only organ that is not merely mechanical or chemical in function, and subservient to the fuelling, distribution or cleansing of that multitudinous all-organ, in which alone the food of life acquires vitality and goes to the maintenance of both form and force in every tissue

and organ of the body, from the brain itself, to the remotest nerve or pellicle or hair. This is the all-in-all of Life, for which all else may be broadly considered as mechanism. So long as the organic mechanism is kept in good working order, with a proper supply of raw material, the blood full-fed, full-celled, and kept clean, is able to convey vitality and vigor and nourishment, to every part; vitality and vigor for defense, and vitalized material for repair, in defiance of hostile influences within or without.

But if the conditions be otherwise, impoverishment of the blood results, internal debility ensues, and disease or disease germs meet with weak resistance. This condition may be transient. Or, it may be constant, in a degree not incompatible with a languid persistence of life; in which case, if some unusal attack occurs, it is evident there can be no salvation in the effete organism, which has chronically demonstrated its incapacity to carry on the sustenance and the care of the blood, and thus to maintain, so to speak, the garrison of its own defence. The defeat of medicine, sudden or gradual, is then certain, unless some other and stronger organism can be made to contribute its vital fluid to meet the default of the failing organism of the patient. That ignominious defeat of medicine has been an invariable result in such cases, from the beginning of the world until recently, because medicine did not know that the blood of bullocks could be substituted in full force and virtue for that which was lacking in the blood vessels of the sick, the debilited and the dying. Hæmatherapy has now come into the world to change all that, and to give a new lease of life, in supplied blood, to most of those hitherto comdemned to untimely death for want of that vital element.

BLOOD AND BLOOD ALONE

having been physiologically ascertained to be the essential and fundamental principle of healing, of defence, and of repair, in the human system; this principle is also proved, by years of constant clinical experience, to be practically available to the system in all cases, to any extent, and wherever needed, internally or externally.

The treatment of disease by Supplied Blood is in principle as old as animal life, and is a new proposition only as to its general practicability. It is settled, so far as the consenus of elightened physiology can settle anything at this stage

of human knowledge, that the powers of the blood of its perfect state are adequate to the defence of the organism against all that is properly called disease. The only sure reason why one is taken and another left, of those equally exposed to the infection of tuberculosis, of small-pox, or of any other infectious disease, is admitted to be the single fact that in one the perfect blood is doing and has been doing its perfect work for the support and the defence of the organism at all points; whereas in the other a deficiency of such health or vitality has somewhere "left him naked to his enemies." The healing of a wound or an ulcer, whatever help the surgeon can claim to have rendered, is always attributed to the virtue of "good blood," and a failure to heal under the best treatment and external conditions, is charged entirely to poverty or impurity of blood. Marvellous healing of injuries which are ordinarily fatal, sometimes astonishes the medical world, showing that it is impossible to draw the line beyond which the vital powers fed by the blood may not withstand any wound that leaves still a workable mechanism *with the blood in it!*

Such is the *principle* of Hæmatherapy, as established by the common consent of scientific authorities and by the undeviating concurrence of facts. As a principle, it can hardly be said now to require discussion on scientific grounds—there is no room left for that. Only, as at first remarked, as to its practicability can any question be raised; and that is mainly or wholly a question of fact; a question on which we present an array of facts beyond measure, in unbroken sequence and uniformity, authenticated by unquestionable professional testimony and the responsible reports of an incorporated institution of regular medicine and surgery.

BUT HAVE WE A LIVING BLOOD CONSERVE?

The indisputable propositions above recited suffice to establish the vital virtue of a blood treatment, on the single condition that we have a practicable conserve of Living Blood for the purpose. No physician will dissent from the conclusion when convinced that it is practically possible to obtain and introduce into the system healthy and *still living* blood, endowed with the same vital force and effect that it exhibits in the natural circulating supply.

But, that blood can live outside and *after* the living body,

and for indefinite time, with its corpuscles still charged with the mysterious power that we call Life, and still capable of imparting that power to the enert materials of nutriment and running them as a living product into the constantly vacated moulds of living tissue—this at first seems a supposition contrary to all probability, analogy, and experience. Nothing appears to be deader, if we may so speak, or swifter to corruption, than split blood, under the conditions in which we are accustomed to view it. This is the *pons asinorum* of the new science, at which learned self-sufficiency usually balks, and obstinately refuses to inquire further.

But, again, if we consider the ease with which life is conserved indefinetly, in every other known depository of life, by simply shielding it, as nature and art so often do, from the agencies of corruption—which may be taken for the *real* synonym of death—and if we remember the numberless instances in which animal life persists of itself as a latent deposit through long periods of suspension of every vital function—we shall find abundant precedents for reversing our *prima facie* presumption that blood corpuscles cannot be preserved alive, and for a probability that the vital power in the life cells, (deposited as it is at the bottom of all vital activity, *supporting*, not dependent on organization and function), will persist independent of them in a suspended or latent condition, as all the other physical forces do, and as even organized bodies actually do, if simply shielded from intruding forces or the rupture of the protecting cell.

With abundant evidence of the persistent of latent life in all other depositories if protected against the beginning of dissolution, what actual evidence have we that life will likewise persist in its cells of the blood if effectually protected, and also that its cells can be and really are thus protected?

That evidence is open to every properly equipped physician in any part of the world, in the two-fold observation, (1) of the visible condition of the preserved corpuscles, and (2) in their invariable exhibition of perfect vital potency when properly applied to a deficiency of the same in the human system or in any locality thereof. Any physician can satisfy himself of the perfect condition of the preserved corpuscles, by simply spreading a drop of "bovinine" on a

microscope slide and examining it with a power of 800 diameters or upwards. If familiar with the aspects of living blood corpuscles, the observer will recognize the same aspects in every particular; the same dense crowd of shifting, changing, double-concave, smoothly rounded, yellowish-red discs, that are described in treatises on the vital fluid in its vital state. This is a statement that challenges verification. To reject it without a test so accessible and conclusive, would be the most natural thing in the world to do—for a mule.

The other test, the final test—the *opus operatum*—requires more patience and medical science; but whenever fairly tried by a competent physician, in cases where the proper technique has been developed, it will settle the great question we have been discussing, beyond the possibility of mistake.

Seldom, however, is the disordered system of the patient, or the traumatic or morbid lesions presented to the surgeon, in a ready-made condition to absorb and appropriate the extraneous blood supply, at once, to the best advantage if any. Medical knowledge and skill must be employed to make an intimate diagnosis of the physical conditions, to apply corrective treatment, and to administer the blood in appropriate gradations, along with such medicinal remedies as the physician may have at command, according to the wisdom given unto him. Assistance for these purposes will be afforded in these pages, by a great variety of detailed clinical experiences and results.

Blood is neither a sectarian nor a proprietory article, any more than air or water, which are equally suitable and necessary in every case and under every system of treatment—*at discretion.* (Conditions of plethora or unreduced inflammation, of course do not indicate immediate addition of blood.)

A
COMPEND
OF THE
PRACTICE OF HÆMATHERAPY
AS APPLIED TO
GENERAL MEDICINE AND SURGERY.

Compliments of
THE BOVININE COMPANY.

One mighty power of Hæmatherapy exists in the fact that where it is applied at the proper time, it will, as nothing else can, prepare the individual, so that nature can and will assert herself and re-establish the normal standard, thereby enabling her to ward off disease. Consequently, it is highly necessary that where it be possible, the physician should employ Bovinine as a tonic and food in the treatment of his cases the minute they show any departure from the normal standard; thus disease may, in a large degree, be prevented. How often every physician has a patient coming to him, saying: "Doctor, I have no particular pain, I cannot tell just how I do feel badly, only I know that I am not well; I do not seem to have the energy and strength which is normally mine." This indicates a departure from the normal, and is the time to begin fortifying your patient against the possible development of some diseased condition. In the large majority of cases, this, of course, is impossible; then we must treat a well-defined condition, either partially or fully developed. For the handling of this state, I refer to the following pages:

A COMPARISON BETWEEN BOVININE, IRON AND VARIOUS OTHER PREPARED FOODS.

Within the past few years iron has become very popular as a theraputic agent in the treatment of anæmia, emaciation and general debility. As the result of this demand, many preparations have been put upon the market; some are excellent, all have their virtue, but the scope of their theraputic usefulness is limited.

Iron, administered in any form, improves the blood's condition by increasing the red blood cells and their power of carrying oxygen. As the result, the patient begins to pick up, but this is the result largely of stimulation, and if persisted in on chronic cases, will invariably meet with reaction. Iron does not feed the newly-born cells, simply stimulates. A close microscopic study of the blood will demonstrate that many new cells never reach maturity and are carried away without doing any good. The fault is that iron does not contain the necessary elements of nutrition. In mild cases of anæmia and general debility this is not so. Only in old chronic conditions, where the nutrition of the body has become greatly impaired.

Other tonics affect in a like manner through different sources. All foods outside of Bovinine have their usefulness, but to a limited degree. One is rich in a certain element of nutrition and deficient in others; another will be abundant in other elements and lack what the other had. Consequently, in advanced stages of malnutrition, their usefulness is very limited. In Bovinine, a result of this kind can never happen, for the reason that it contains every element of nutrition of the animal, mineral and vegetable kingdoms—animal iron, which is much more readily assimilated than chemical iron, does not constipate or over-stimulate the young cells in an exact proportion. Consequently, there can be no form of malnutrition that is not fully and completely met, whether it be local or general. Besides, Bovinine is a thoroughly sterile preparation, stimulating and requiring little or no digestion—a point of great importance in the treatment of all chronic conditions, wasting diseases and fevers. There is nothing like it; neither can it be manufactured by others without infringement on the patent rights.

CHANGE OF FOOD TO BLOOD THE FUNCTION OF THE RED CELL; NOT DESTROYED BY DRYING.

W. Cohnstein and H. Michaelis (Pfluger's Archiv.) show that after the chyle is conveyed into the circulation in the form of a very fine emulsion, a further change takes place in the fat, termed "lipolysis," whereby it is modified into a substance soluble in water. The property of inducing this lipolysis is stated by the authors to be the property of the red blood cell and not the serum. The process is in the nature of a fermentation, and is favored by high temperatures. The presence of oxygen is necessary for the process, and it cannot be replaced by any other gas, especially not by hydrogen. The authors further show how faulty analysis of the blood-fats has been because this important factor was not considered; variations as great as 70 per cent. becoming manifest on slight exposure to the air. Dried blood has a similar action upon fats, but a drying point above 40° C. must be avoided.

The words above convey a truth of decisive importance as to the vital efficacy of preserved blood; proving that the red blood cell, even when dried, retains its vital lipolytic power, but must not have been heated to fever temperature. Thus, the cold process of blood-preserving, with or without desiccation, preserves the perfect vital element, which is only another name for health wherever introduced in the absence of neutralizing or repellent obstacles—which are few.

Seldom, however, is the disordered system of the patient, or the traumatic or morbid lesions presented to the surgeon, in a ready-made condition to absorb and appropriate the extraneous blood supply, at once, to the best advantage if any. Medical knowledge and skill must be employed to make an intimate diagnosis of the physical conditions, to apply corrective treatment, and to administer the blood in appropriate gradations, along with such medicinal remedies as the physician may have at command, according to the wisdom given unto him. Assistance for these purposes will be afforded in these pages by a great variety of detailed clinical experiences and results.

THE UNDISCOVERED POWERS OF THE BLOOD.

Gradually, the medico-scientific world is beginning to apprehend and demonstrate the all-protective virtue that resides in pure untoxined life-blood. The well-known im-

munity of the serpent-killing mongoose and hedgehog, to the bites of the most venomous reptiles, has been recently investigated and demonstrated in scientific experiments by Physalix and Bertrand, who have published their report in the Revue Scientifique of Paris. They find in the normal blood of these animals a distinct antitoxin, of such power as to overcome the most deadly doses of serpent venom.

The most important part of their report, however, consists in the evidence they think they perceive, of a common anti-toxic quality in all blood, distributed in various degrees among the different species, but far more universal and powerful than has yet been apprehended. Probably the curative and prophylactic effects of toxin-treated serum should be credited to the normal blood as stimulated by that discipline, while the many fatal cases are due to the animal poison unnecessarily superadded in the ignorance of our rash experimenters on human life. This is what Physalix and Bertrand say in the direction of a universal immunizing power in perfect normal blood:

"Is this immunizing substance peculiar to the hedgehog? We think not. On the contrary, our experiments indicate that it is only the exaggeration of a general fact; that is to say, the presence in variable quantity, in the blood of a great number of animals, of substances capable of neutralizing the effects of venom and of certain toxins."

BOVININE.

"PREPARED ON SOUND SCIENTIFIC PRINCIPLES."
—*The Lancet.*

Bovinine is nothing less than the consummate product of the nutritive process in the living body. It is not to be confounded with mere nutrients or foods, however elaborated artificially, since it outclasses them by at least three stages of development possible only in the living body—assimilation, composition, and vitalization—already completed. Hence, among the mere "foods," there can be nothing so completely fitted to the wants of humanity as Bovinine. It includes, of necessity, all the nutritive principles which enter into the component parts of the human body, and being already perfect and perfectly preserved. needs no further elaboration in the system, but goes directly to every part, leaving the stomach entirely at rest,

as it so often absolutely needs to be left, and at the same time keeping up a perfect nutrition of the entire body.

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Thus in Bovinine is found all that is need for the perfect nutrition, and vitalization as well, of the entire animal organism. It is, therefore, indicated in all diseased conditions of the body and mind.

There is no condition of the stomach or system, so delicate, debilitated, or sensitive, but that Bovinine may be administered happily and successfully, with due regard to proper dosage, to the neutralization of antagonisms, and to the proper avenues to be chosen, according to the condition of the case.

SIMPLE CONTINUED FEVER.

Synonyms.—Irritative fever; febricula; ephemeral fever; synocha.

Definition.—A continued fever, short duration, mild in character, not the result of a specific poison, rarely fatal; when death does occur, presents no characteristic lesion.

Causes.—Fatigue, mental and physical; exposure to heat or cold; excesses in eating and drinking; excitement and violent emotion; most common in childhood; not a miasmatic fever, not contagious.

Symptoms.—Onset sudden, with an abrupt feeling of lassitude, followed by chill, rise of temperature, quick tense pulse, headache, dry skin, thirst, coated tongue, constipation, scanty, high-colored urine. Cases due to errors in diet accompanied by nausea and vomiting, sometimes convulsions. Temperature sometimes reaches 103° F., or more; sometimes slight delirium; no constant or characteristic erruption.

Duration.—From twenty-four hours to six or seven days.

TERMINATION.—Crisis or lysis. Herpes about the lips and nostrils often observed at close of attack. Under proper treatment convalescence rapid.

DIAGNOSIS.—Unless fever can be attributed to some one of the causes that give rise to it, a doubt as to its character may exist for the first twenty-four hours, after which time it can hardly be mistaken for any other disease.

PROGNOSIS.—Under proper nutrition and care, recovery without sequelæ, the rule.

TREATMENT.—Symptomatic as far as medicine is concerned. Bovinine should be given from five drops to a tablespoonful, from every half hour to every three hours, according to the age and condition of the patient. It should be commenced immediately and continued throughout the disease, and persisted in for a week at least after all symptoms have subsided. Bovinine may be given in almost any pabulem.

CATARRHAL FEVER.

SYNONYMS.—Influenza; epidemic catarrhal fever; contagious catarrh.

DEFINITION.—A continued fever, occurring generally as an epidemic; due to a specific cause; characterized by a catarrhal inflammation of the respiratory organs, sometimes of the digestive; always accompanied by nervous phenomena and marked debility.

CAUSES.—A specific vegetable germ, uninfluenced by soil, climate or atmospheric changes; not contagious. One attack does not give immunity from another attack, but rather predisposes to it.

SYMPTOMS.—The disease presents the greatest variations as regards intensity, sometimes trifling, in other cases most grave, terminating in death.

Onset sudden, with a chill, followed by fever, temperature reaching 101° to 103°, a quick, compressible pulse, and severe shooting pains in the eyes, frontal sinuses, joints and muscles. Chill and fever rapidly followed by chilliness along the spine, pain in the throat, hoarseness, deafness, coryza, sneezing, injected, water eye, laryngeal cough, sometimes becoming bronchial. Tongue is furred, there is anorexia, epigastric distress, nausea, vomiting and oftentimes diarrhœa. Above symptoms always associated

with decided weakness and debility, out of all proportion to the intensity of the fever and catarrhal phenomena. Delirium is rare, but marked hebetude and cutaneous hyperæsthesia are common.

Duration.—Four to seven days, with protracted convalescence. Relapses frequently occur.

Complications.—Lobar or catarrhal pneumonia frequently occur, which adds to the gravity of the attack. The cough may outlast the disease several weeks.

Diagnosis.—Isolated cases may be mistaken for a "bad cold." But when epidemic, the sudden onset, marked general catarrh and decided prostration should prevent error.

Prognosis.—Recovery is the rule when it occurs in the healthy and vigorous. Grave when the very young, very old, or those suffering from organic disease, such as Bright's disease, fatty heart, or emphysema, are attacked.

Treatment.—Symptomatic. Bovining should be invariably commenced at the very onset and given internally from five drops to a wineglassful from every hour to every four hours, as the age and condition of the patient indicates. As a relief for the nasal catarrh, a teaspoonful of Bovinine added to three ounces of normal salt solution, either sprayed or snuffed into the nostrils every two or three hours.

TYPHOID FEVER.

Synonyms.—Enteric fever; gastric fever; nervous fever; entero-mesentric fever; abdominal typhus; autumnal fever.

Definition.—An acute, self-limited, febrile affection, due to a special poison; characterized by insidious prodromes; epistaxis; dull headache followed by stupor and delirium; red tongue, becoming dry, brown and cracked; abdominal tenderness, early diarrhœa and tympany; a peculiar erruption upon the abdomen; rapid prostration and slow convalescence; a constant lesion of Peyer's patches, the mesenteric glands and of the spleen.

Causes.—Predisposing and exciting. The chief predisposing causes are Age, to-wit: Young adults between eighteen and twenty-five years; rare after forty years; and season, to-wit: a dry and hot autumn.

The exciting cause is a special typhoid germ, the bacillus typhosus. The poison unusally results from the decomposition of the typhoid stools and the sputum.

The atmosphere is never impregnated with the fever germ. The poison gains its entrance into the system by means of infected water, milk, ice, meat or other food. The germ is easily destroyed by thorough disinfection of the stools and sputum with heat, but extreme cold will not destroy the typhoid germ.

Pathological Anatomy.—The specific anatomical lesions of typhoid fever are invariably present, and are so characteristic that an examination of the body after death will in any case make known the nature of the disease, even had the symtoms been unknown. These lesions consist in changes in the Peyerian patches and solitary glands, which may be divided into well-defined stages, as follows:

First stage: Swelling, from infiltration and excessive proliferation of their cellular elements; the surrounding mucous membrane is also infiltrated with cells. The Peyer's patches are thickened, hardened and elevated above the mucous membrane. The number of patches and glands involved is from three or four up to nearly the entire number. The above changes have been noted as early as the second day.

Second Stage: Softening, sloughing and ulceration of the solitary and agminate glands constitute this stage; either of the processes going on at the same time. Not all the patches necessarily slough; morbid changes are arrested in some of them before softening. This stage constitute the anatomical changes of the second and third week.

Fourth Stage: Cicatrization, or in rare cases, perforation. The ulcer gradually diminishes in size, surface becoming covered with a delicate layer of granulations, which is soon transformed into connective tissue and covered with ephithelium, the resulting scar being slightly depressed. The gland structure is never regenerated.

The Mesenteric glands become infiltrated, enlarged and softened, but seldom ulcerate.

The spleen also enlarges and softens. There is also parenchymatous degeneration or granular changes in all the tissues of the body.

Symptoms: Stage of Prodomes.—Onset insidious, with a

feeling of general malaise, vertigo, headache, disordered digestion, disturbed sleep, epistaxis, depression, and muscular weakness, followed by chill or chilliness. In rare instances the disease begins abruptly with a chill, followed by high fever; this is particularly the case in malarial districts.

First Week, dates from onset of fever, when are present increasing temperature, frequent pulse, coated tongue, nausea, diarrhœa, headache, and upon the seventh day a few reddish spots resembling flea bites appear upon the abdomen, chest or back.

Second Week, the foregoing symptoms are exaggerated; fever continuous, frequent and compressible pulse, tympanitic, tender abdomen, gurgling in the right iliac fosæ, nocturnal delirium, severe and constant headache, often stupor, a short cough, with distinct bronchial rales on auscultation, irregular muscular contractions (subsultus tendinum) sordes upon the teeth and lips, the diarrhœa continuing. During this stage deafness developes, often increasing until complete, continuing into convalescence. Disturbances of vision are frequent in pronounced cases.

Third Week, Fever changes from continuous to remittent: the evening excerbations continue as high as the preceding week, and all the symptoms remain about the same until near the end of the week, when a marked amelioration begins.

Fourth Week, Fever decidedly remits. Almost normal in morning, pulse less frequent and more full, tongue gradually becoming clean, the abdomen lessens in size, the diarrhœa ceases, the patient passing into a slow convalescence, greatly emaciated, which condition may continue for several weeks.

Analysis of Symptoms.—The temperature record of typhoid fever is a characteristic one. The fever on the morning of the first day may be stated at 98.5° F., evening 100.5°. Second morning, 99.5°, evening, 101.5°; third morning, 100.5°, evening, 102.5°; fourth morning 101.5°, evening 103.5°; fifth evening, 104.5°. From that time until the end of the second week, the evening temperature ranges between 103° and 105°, the morning temperature being a degree or more lower.

Diarrhœa is the principal intestinal symptom; if absent,

the lesion is slight. The stools are at first dark, but early in the second week they become fluid, offensive, ochre-yellow in color, resembling "pea soup" and may be streaked with blood. They number from three to fifteen in the twenty-four hours.

Constipation occurs more frequently than is supposed.

Eruption is almost constant. Consist of five to twenty small, rose-colored spots on the abdomen, chest or back, sometimes on the limbs, appearing in crops, lasting about five days, disappearing on pressure and at death. Return-with relapses. Eruption day from the seventh to the ninth.

Rarely spots of a delicate blue tint—the "taches bleuatres" of French authors—are observed.

Nervous symptoms are, pronounced headache, early and severe, dullness of intellect soon following, passing into drowsiness and stupor, with great prostration. Deafness pronounced. Sight impared, in grave cases double vision. Delirium low and muttering, generally pleasant in character; always present in marked cases. Coma vigil is a grave symptom, the patient lying perfectly quiet with eyes open, taking no heed of his surroundings.

Muscular symptoms are developed late in the second or or early in the third week, and consist of irregular contractions or subsultus tendinum, and are the result of great debility. The reverse of muscular contractions, to-wit: perfectly motionless in bed, attempting no muscular effort of any kind, is a grave sign.

Convalescence shows great debility, great anæmia and great nervousness, often very protracted; great irritability of the heart, profuse night sweats and insomnia, and in woman loss of the hair.

Complications.—Intestinal hemorrhage is the most frequent, and at times the most critical of any of the complications of typhoid fever. The hemorrhage may occur at any time between the fourteenth and twentieth day; a sudden decline of the temperature to the normal or below frequently precedes the passage of blood by stool. The hemorrhage is due to the erosion of a vessel during ulcerative action.

Perforation makes the case almost hopeless. Peritonitis without perforation adds to the gravity, but not necessarily fatal. Lobar pneumonia, hypostatic congestion and bron-

chitis are frequent occurrences. Albuminuria may occur, as may phlegmasia dolens.

Relapses Are Common.—The symptoms all return abruptly; the duration is half the time of the original attack; occur at the end of the fourth or beginning of the fifth week. Not so fatal as generally supposed.

Abortive typhoid fever are cases of mild character, having many of the typical symptoms, running its course in about two weeks. The so-called walking cases are often of this character.

Diagnosis.—An error that is constantly being made is that of confounding typhoid fever with the typhoid (depressing) symptoms or condition developing during the course of many acute diseases. The absence of the characteristic diarrhœa, the peculiar eruption, and the typical temperature record, should prevent the error.

Entritis has intestinal disorders alone.

Peritonitis, abdominal symptoms only, with constipation.

Acute miliary tuberculosis often mistaken for typhoid fever, an error difficult to prevent at times.

Meningitis lacks the intestinal symptoms and fever record.

The so-called typho-malarial or malario-typhoid fever has many symptoms in common, but lacks the diarrhœa, eruption and temperature record.

Prognosis.—A positive prognosis cannot be made. Favorable indications are constipation, slight diarrhœa, low temperature, and moderate delirium. Unfavorable symptoms are obstinate and severe diarrhœa, early high temperature, marked nervous symptoms with coma vigil or stupor, albuminuria, and repeated intestinal hemorrhages.

The prognosis is always more favorable in winter than in summer.

The mortality in typhoid fever in private practice is about one death in twenty; in hospital practice it varies from one death in five or ten cases.

Treatment.—In prescribing for typhoid fever, so far as the administration of drugs is concerned, is entirely symptomatic with the exception of some mild intestinal antiseptic which should be continued throughout. In no condition is Bovinine so thoroughly and completely indicated as in typhoid. It is an ideal food, supplying to the system every

element of nutrition in the proper proportion and giving the stomach an absolute rest. It also acts as a stimulant and intestinal antiseptic. It should be given from five drop doses to a wineglassful from every hour to every four hours, according to the age and condition of the patient. It has been found that it was best during the fever stage to to give small doses of Bovinine, say a teaspoonful in peptonized milk and lime water, often repeated. Never in a single case where Bovinine was used from the onset has there been reported a single case of perforation or peritonitis, and the stage of convalescence has always been greatly shortened.

TYPHUS FEVER.

SYNONYMS.—Contagious fever; ship fever; jail fever.

DEFINITION.—An acute febrile, epedemic disease; highly contagious, and characterized by sudden invasion, profound depression of the vital powers, sickening odor, and a peculiar petechial eruption. Favorable cases terminating by crisis about the fourteenth day. No lesion.

CAUSE.—A special infecting germ, the character of which is unknown, but which is influenced by filth and overcrowding. Rarely seen in the United States.

PATHOLOGY.—No constant lesion. Blood dark and thin, with lessened fibrin, tissues dark, soft and flabby.

SYMPTOMS.—Begins abruptly; chill followed by violent fever; temperature within a few days reaching 104° to 105° F.; a frequent bounding pulse, soon becoming compressible; severe headache followed by violent delirium; from the fifth to the seventh day, a course, red, measly eruption, with a mottling of the skin all over the body, except the face, not disappearing on pressure; constipation the rule. End of the second week, the temperature suddenly declines and the case passes into a rapid convalescence.

COMPLICATIONS.—Pneumonia and swollen parotid glands are common.

DIAGNOSIS.—From Typhoid fever, the age, season, onset of the disease, character of the eruption, and the intestinal symptoms.

Measles being milder, with coryza and cough, and seldom have such pronounced nervous phenomena, but there occurs an early eruption appearing on the face.

PROGNOSIS.—Unfavorable indications: high temperature, frequent pulse, early stupor, presentiment of death. Favorable: Youth, moderate temperature and pulse, and mild nervous phenomena.

TREATMENT.—In the treatment of typhus fever, Bovinine if given from the onset, will undoubtedly lessen the severity of the attack. Through its splendid nutritive qualities, it fortifies Nature, enabling her to combat the pathological lesion. Nothing can compare with Bovinine in producing healthy cell proliferation. It should be given in from five drop doses to a wineglassful from every hour to every three hours, according to the age and condition of the patient.

CEREBRO-SPINAL FEVER.

SYNONYMS.—Epidemic cerebro-spinal meningitis; epidemic cerebro-spinal fever, spotted fever; cerebro-spinal typhus.

DEFINITION.—A malignant epidemic fever, characterized by headache, vomiting, painful contractions of the muscles of the back of the neck, retraction of the head, hyperæsthesia, disorders of the special senses, delirium, stupor, coma, and frequently an eruption of petchia or purpuric spots—a subcutaneous extravasion of blood. Lesions of cerebral and spinal membranes are found at the post-mortem.

CAUSE.—A special micro-organism of oval shape, occuring mostly in pairs and faintly tremulous, resembling those found in pneumonia and erysipelas, though hardly identical. Bad hygiene seems to favor the development of this affection, but can hardly be considered its cause.

The disease seems to have a predilection for the young. Occurs most frequently in the winter months. Not contagious.

PATHOLOGICAL ANATOMY.—The extent of the lesion present in a given case depends upon the duration of the illness. In cases rapidly fatal, it is probable that the subject is overwhelmed by the poison ere the characteristic anatomical changes have time to develop.

The changes in the disease are two-fold, to-wit: Those due to the direct action of the infecting poison upon the blood, producing the group of symptoms constituting the

fever; and those giving rise to the local inflammation, viz: Hyperæmia of the membranes of the brain and spinal cord, followed by an exudation of lymph and an effusion of serum, resulting in pressure on the brain and cord. The inflammatory changes are more marked in the membranes at the base of the brain than elsewhere.

Symptoms.—Divided, according to the severity of the lesion, into three groups, to-wit: The common form, the fulminant, and the abortive.

The common form begins abruptly with a chill, excruciating headache, persistent nausea, vomiting, vertigo, and an overwhelming sense of weakness. Within a few hours the muscles of the back of the neck become rigid and retracted, with decided pain upon moving the head; this rigidity and retraction soon extends to the back, when opisthotonos occurs. Great restlessness, surface of body becomes highly sensitive (hyperæsthesia). Cramps in muscles of legs and elsewhere, spasmodic twitchings of the lips and eyelids come and go, and finally convulsions or delirium occur. Intolerance of light, and in some cases amaurosis, more or less deafness, loss of sense of smell and taste soon following. The temperature and pulse records are irregular. From the first day to the fifth an eruption of petechiæ or purpura occurs in the majority of cases. Disease reaches its height in from three to eight days, and passes into stupor and coma, or ameliorates and passes into a protracted convalescence.

The Fulminant Form: Severe chill, depression, and in a few hours, collapse. The patient is overcome by the poison and never reacts.

The Abortive Form consists of one or more pronounced characteristic symptoms during the course of an epidemic.

Sequelæ.—Result from thickening of either the cerebral or spinal membranes; persistent headache, blindness or deafness, partial or complete; epilepsy, or different forms of spinal palsies.

Complications.—Pneumonia; typhoid fever; pleuritis; intestinal catarrh, in infants.

Diagnosis.—Typhoid fever begins slowly, has a characteristic temperature record, with so intense headache, muscular rigidity, vomiting, early delirium, ending in coma.

Typhus fever has higher fever, is of longer duration, and has a peculiar measly eruption, is not attended with muscular rigidity and retraction, hyperæsthesia, nor disorders of the special senses.

Tubercular meningitis is not epidemic, has no characteristic eruption; is preceded by long prodromes, and runs a tedious course.

A congestive chill resembles the fulminant cases in suddenness of depression, but the latter has not the history of the former.

Inflammation of the meninges of the cord is due to exposure to cold, or syphilis, and is not attended with cerebral symptoms or an eruption.

PROGNOSIS.—Varies according to epidemic; from twenty to fifty, and even seventy-five per cent. die.

TREATMENT.—Symptomatic and sustaining. Bovinine and milk should be used during the attack to the exclusion of all other food, in from five-drop doses to a wineglassful, from every hour to every four hours, as the age and condition of the patient indicates.

RELAPSING FEVER.

SYNONYMS.—Famine fever; bilious typhoid fever.

DEFINITION.—An epidemic, contagious, febrile disease, self-limited; characterized by a febrile paroxysm, succeeded by an entire intermission, which is in turn followed by a relapse, similar to the first seizure. No specific lesion.

CAUSE.—A specific poison; contagious; acquiring the greater activity the more filthy, crowded and unhealthy the population amid which it prevails.

PATHOLOGICAL ANATOMY.—During the febrile paroxysm only, blood contains minute cork-screw-shaped organisms or spiral filaments—spirilli, constantly twisting and rotating. Liver and spleen greatly swollen.

SYMPTOMS.—No prodromes. Onset abrupt, with fever 102°–104°; frequent, rather weak pulse, headache, nausea, vomiting, and lancinating pains in limbs and muscles, marked in the calf of leg. Second Day: Feeling of fullness and pressure in right and left hypochondrium, due to swollen liver and spleen; jaundice is frequent. Seventh Day: Fever ends by crisis. Fourteenth Day: Symptoms return in milder form, continuing about four days, when

enters slow convalescence, much emaciated. No eruption. Several relapses may occur.

Diagnosis.—Yellow fever has many points of resemblance, but has a shorter febrile stage, remissions not so complete, vomiting late and characteristic, normal spleen, and the late disappearance of yellow color.

Remittent fever begins with a decided chill, followed by fever and sweats, and not the progressive rise of temperature till the fifth or seventh day.

Prognosis.—Recovery the rule, but protracted, and decided emaciation results.

Treatment.—Drug treatment symptomatic. In this condition, if Bovinine were employed early enough, a fully developed relapsing fever would not occur, but when it has been fully developed and the physician is called in, nothing can compare with Bovinine as an ideal food to sustain the patient and bring about a rapid diminution in the pathological lesion. It should be given in from five-drop doses to a wineglassful, from every hour to every four hours, as the age and condition of the patient indicates.

PERIODICAL FEVERS.

These affections are characterized by the distinct periodicity of the phenomena, having intervals during which the patient is wholly or nearly free from fever.

INTERMITTENT FEVER.

Synonyms.—Ague; chills and fever; malarial fever; swamp fever.

Definition.—A paroxysmal fever, the phenomena observing a regular succession; characterized by a cold, a hot and a sweating stage, followed by an interval of complete intermission or apyrexia, varying in length according to the variety of shock.

Cause.—Malaria. Bicillus malaria. The period of incubation varies from a few days to weeks, months or even years. Either sex and all ages are susceptible to the poison.

Pathological Anatomy.—Blood dark from the formation of pigment (Melanæmia). Spleen swollen (Ague cake). Liver engorged and swollen.

Varieties.—Quotidian when a daily paroxysm; tertian when every other day; quartan when it occurs first and fourth days; octan when weekly; duplicated quotidian when two paroxysms daily; duplicated tertian, two every second day; double tertian, daily paroxysm, but more severe every second day. Dumb ague, or masked ague, presents irregularity of the characteristic phenomena.

Symptoms.—Each paroxysm has three stages, the cold, hot and sweating.

Cold stage begins with prodromes, viz: Lassitude, yawning, headache and nausea, followed by a chill; the teeth chatter, skin pale, nails and lips blue, surface rough and pale, the so-called goose-skin or cutis anserina, nausea and great thirst, rise of temperature, 102° F., 104° F.; these phenomena continuing from one-half to an hour.

Hot Stage: Begins gradually by the shivering ceasing, surface becoming hot and flushed, temperature rising to 106° F. or more, full pulse, headache, nausea, intense thirst, dry, flushed, swollen skin, scanty urine and other phenomena of pyrexia, continuing from one to eight or ten hours.

Sweating Stage: Begins gradually, first appearing on forehead, then spreading over entire surface, fever lessens, temperature rapidly falling to 99° or 98°, pulse less full, headache lessens, sleep often following; duration from one to four hours, when the intermission occurs, the patient apparently well, except for a feeling of general debility.

The occurrence of the next paroxysm depends upon the variety of the attack.

Diagnosis.—No difficulty when the characteristic chill, fever, and sweats occur.

Hectic Fever: Distinguished by its irregularity, and occurring secondary to an organic disease.

Pyæmia produced by other causes than malaria.

Prognosis.—Recovery the rule. Without treatment many cases end favorably after several paroxysms; others passing into the chronic form or malaria cachexia.

Treatment.—Bovinine is here the ideal food, as it keeps up perfect nutrition, bringing the blood up to a normal standard, thus enabling the system to throw off the poison. It should be given in five drop doses to a wineglassful, from every hour to every four hours, as indicated. Drug treatment symptomatic.

REMITTENT FEVER.

SYNONYMS.—Bilious fever; bilious remittent fever; marsh fever; typho-malarial fever.

DEFINITION.—A paroxysmal fever, with exacabations and remissions; characterized by a moderate cold stage (which does not recur with each paroxysm); an intense hot stage, with violent headache and gastric irritability; and an almost imperceptible sweating stage, which is frequently wanting.

CAUSE.—Malaria, aided by high temperature.

PATHOLOGICAL ANATOMY.—Blood dark (Melanæmia); spleen enlarged, soft, filled with blood, and of an olive color; liver congested and swollen, and of a bronze hue; the brain hyperæmic and olive-colored; gastro-intestinal canal markedly hyperæmic.

SYMPTOMS.—Cold Stage: Moderate chill, the temperature rising 1° to 2°, coated, dry tongue, oppression of epigastrium, slight headache, and pains throughout the body.

Hot Stage: Persistent vomiting, furred tongue, full pulse, rising to 100 or 120, flushed face, injected eye, violent headache, pains in limbs and loins, hurried respiration, the temperature rising to 104° F., or 106°. The bowels costive, stools tarry and offensive, and the surface becoming yellow. Delirium occurs when the temperature is very high.

Sweating Stage: After six to twenty-four hours, the above symptoms abate, and slight sweating occurs; the pulse, headache and vomiting subside, and the temperature falls to 100° F., or 99°.

This is the remission. After some two to eight or twelve hours, the symptoms of the hot stage return, generally minus the chill, and this is termed the exacerbation, which is in turn again followed by the remission.

DURATION.—From seven to fourteen days, the average. Frequently the fever ceases to remit, and instead becomes continuous, the symptoms resembling, if not identical with the typhoid state, whence the term typho-malarial fever, or malario-typhoid fever.

SEQUELÆ.—The malarial cachexia results when the poison has been eliminated from the system.

Persistent headache and vertigo are the results of the intense meningeal hyperæmia that sometimes occurs.

Diagnosis.—In intermittent fever each paroxysm begins with a chill, while the chill seldom recurs in remittent fever; a distinct intermission follows each paroxysm of the intermittent form, while a remission occurs in the remittent, fever does not wholly disappear; during intermission patient is apparently well; such is not the case in the remission of remittent fever.

Typhoid fever is mistaken for remittent fever, but the absence of the characteristic temperature record, diarrhœa, eruption, tympanites, deafness, and severe prostration, should prevent such an error.

Prognosis.—Uncomplicated cases are favorable.

Treatment.—Drug treatment symptomatic. Bovinine is the ideal food in this condition, as it keeps up perfect nutrition, bringing the blood up to a normal standard, enabling the system to throw off the poison. It should be given in five-drop doses to a wineglassful, from every hour to every four hours, according to the age and condition of the patient.

PERNICIOUS FEVER.

Synonyms.—Congestive fever; malignant intermittent fever; malignant remittent fever.

Definition.—A malignant, destructive malarial fever, which may be of the intermittent or remittent form; characterized by intense congestion of one or more internal organs, together with dangerous perversion of the functions of innervation.

Cause.—A high degree of malarial poison.

Varieties.—Gastro-enteric; thoracic; cerebral; hemorrhagic; algid.

Symptoms.—Any of these varieties may begin either as an intermittent or remittent fever; again, the first paroxysm is rarely pernicious, but appears as the ordinary malarial attack.

The gastro-enteric variety has as distinctive features intense nausea and vomiting, purging of thin discharges mixed with blood, tenesmus, burning heat in stomach, intense thirst, frequent, weak pulse, face, hands and feet cold, with shrunken features, and intense depression of all the vital forces. This condition continues half an hour to several hours, when either an inter or remission occurs.

Thoracic variety often combined with the one just described. Its characteristic features are due to overwhelming congestion of the lungs, such as violent dyspnœa, gasping for air, fifty to sixty respirations per minute, oppressed cough, with slight amount of blood-streaked sputa, frequent, weak pulse, cold surface, and terror-stricken features. Duration same as above.

Cerebral variety, due to intense congestion of the brain; sometimes effusion of serinto the ventricles, or even rupture of small blood vessels. Characterized by violent delirium, followed by stupor and coma, slow, full pulse, the surface either flushed or livid. Cases may either resemble apoplexy (comatose variety), or acute meningitis (delirius variety). Duration same as the other forms.

Hemorrhagic variety, or the yellow disease, as it has been termed, begins an ordinary inter or remittent fever, soon followed by signs of internal congestion, to wit: nausea, vomiting, dyspnœa, severe pains over liver and kidney, continued for a few hours, when the surface suddenly turns yellow, and bloody urine is voided, after which an inter or remission and marked abatement occur, to be sooner or later followed by a second paroxysm, which is more severe, with additional signs of cerebral congestion. Blood may also escape from other parts than the kidneys.

Algid variety is characterized by an intense coldness of the surface, while the rectal temperature ranges from 104° to 107° F. Attack begins with a chill, soon followed by fever of variable duration, when the body becomes cold, the axillary temperature falling to 90°, 88° or even 85° F., a cold sweat covers the surface, the tongue is white, moist and cold, breath icy, voice feeble and indistinct, pulse slow, feeble and often absent at the wrist, patient complains of burning and intense thirst. The mind is clear, but countenance is death-like.

Duration.—Pernicious fever, in any of its forms, may continue from a few hours to one, two or three days. Recovery is rare after a second, almost never after a third paroxysm.

Diagnosis.—Yellow fever is most apt to be confounded with the hemorrhagic variety, and as both occur in the same localities, the diagnosis is difficult; the early yellowness of the surface with hæmatura, and the absence of the

black vomit, an epidemic prevalence, are the chief points of distinction.

The cerebral variety may be mistaken for cerebral apoplexy, meningitis and uræmic convulsions. Nor is it always an easy matter to differentiate between these conditions.

The gastro-enteric variety may be mistaken for the early stage and the algid variety for the latter stage of cholera, but the epedemic prevalence of the latter should be of material aid in determining the diagnosis.

Prognosis.—In all varieties the result is unfavorable, unless it can be controlled prior to the second paroxysm. Cases in which an intermission occurs are better controlled than where a remission follows. The mortality is one in eight from all plans of treatment.

Treatment.—Drug treatment symptomatic. So far is the system poisioned in this condition that it is necessary to have the system asorb as mnch of the Bovinine as possible, so as to rapidly combat through the blood the pathological lesion. Bovinine should be given, as in all other cases, in from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient. At bedtime a high rectal injection, consisting of from two to five ounces of Bovinine in from four to six ounces of normal salt solution. When the patient has entered the stage of convalescence, the rectal injections should be discontinued.

YELLOW FEVER.

Synonyms.—Bilious malignant fever; typhus icterode, Mediterranean fever, sailor's fever.

Definition.—An acute, infectious, paroxysmal disease of three stages, viz: The febrile, the remission, and the collapse; characterized by violent fever, yellowness of the surface, and "black or coffee-ground vomit." Tendency fatal; one attack confers immunity from a second.

Cause —A specific poison, existing only with a high temperature and destroyed by frost. Not due to the malarial poison.

Pathological Anatomy.—Skin lemon or greenish-yellow color, due to dissolution of the red blood corpuscles; heart softened by granular degeneration; stomach, veins deeply

engored, the mucous membrane softened, and containing more or less "coffee-ground" matter, which consists of blood corpuscles deprived of their hæmo-globin, white corpuscles, epithelial cells and debris. Intestines much the same as stomach; liver yellow and a fatty degeneration of the hepatic cells; kidneys granular, degeneration of the epithelium of the tubules.

Symptoms.—First stage, the febrile, beginning either with the prodromata of malaise, headache and anorexia, or suddenly with a chill, high fever, in a few hours reaching 104° to 106° F., high pulse, 90-100 beats, brilliant eye, flushed countenance, coated tongue, irritability of the stomach, and severe neuralgic pains in the head, limbs, epigastrium, neck and large joints. The patients are restless, anxious, with a feeling of general prostration. In severe attacks delirium is frequent. Albumin in the urine and a peculiar and characteristic odor is emitted from the patient. Duration of the first stage from thirty-six hours to three or four days.

Second stage, the remission, when the temperature declines to 100° or 101° F., and all the distressing symptoms abate or subside and with some critical evacuation, convalescence occurs, or more commonly, after from a few hours to one to four days, the

Third stage, the stage of collapse, or the period of secondary fever, is ushered in by a return of all the symptoms of the first stage in an exaggerated form, followed by yellowness of the skin, passing to a deep mahogany color, black vomit and hemorrhages from other parts, feeble pulse, cold surface, irregular respiration, and death from exhaustion, the mind remaining clear until the end.

The above symptoms represent a sthenic case; other varieties are the algid, hemorrhagic and typhus.

Duration.—Depends upon the variety; from a few hours to a few days. Rarely continues longer than a week.

Diagnosis.—Pernicious fever, hemorrhagic variety, is apt to be mistaken for yellow fever. Yellow fever is a disease of one paroxysm, and one remission, epidemic, with albuminuria and black vomit, rarely black vomit or albumin in urine.

Prognosis.—One in four perish. Short cases unfavorable, as are the hemorrhagic and algid varieties.

TREATMENT. — Drug treatment alterative and symptomatic. Bovinine from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient. The Bovinine in this condition fortifies the system as nothing else can do, thereby enabling nature to combat this dread condition.

ERUPTIVE FEVERS.

As a group, the eruptive or exanthematous fevers have many features in common. All have a period of incubation, are characterized by a fever of more or less intensity preceding the eruption, by an eruption which is peculiar to each, occurring most commonly in childhood, rarely attacking the same person twice, very prone to occasion serious sequelæ, and are contagious. Their origin is as yet undetermined.

SCARLET FEVER.

SYNONYM.—Scarlatina.

DEFINITION.—An acute, self-limited, infectious disease, characterized by high temperature, rapid pulse and diffused scarlet eruption, terminating with desquamation, inflammation of the throat, and frequently more or less grave nervous phenomena, serious sequelæ frequently following an attack. One attack confers immunity from the disease.

PATHOLOGICAL ANATOMY.—An acute inflammation of the skin, with exudation—a true Dermatitis. A granular change in all the glandular structures, most marked in the Peyerian glands, although also occurring in the stomach and kidneys.

CAUSE.—A specific poison, maintaining its vitality for a long time. Highly contagious, the contagion residing chiefly in the desquamated epidermis. Klebs' micrococci, the "monas scarlatinosum," may prove to be the poison. Incubation short, one to seven days.

VARIETIES.—Scarlatina simplex, scarlatina anginosa and scarlatina maligna.

SYMPTOMS.—A mild case is a very trivial affection, but in its severest forms there are few diseases more malignant.

Onset sudden with a decided chill and vomiting (in infants, convulsions), pain in throat followed by high fever, soon reaching 105°; a rapid pulse, 110 to 140 being common. At the end of twenty-four hours a bright scarlet rash appears on the neck and chest, spreading over the entire body within a few hours; the eruption is not raised, there is no intervening healthy skin, and scattered irregularly are points of a darker hue. With the appearance of the eruption occurs burning heat of surface, burning in the throat and difficulty of deglutition, the throat presenting the appearance of a catarrhal inflammation. Tongue at first furred, later red, with prominent papillæ—the "strawberry tongue." There also occurs headache, great restlessness, and in severe cases delirium. Diarrhœa quite common.

On the fourth or fifth day the fever declines by lysis, eruption fading, and on the fifth or eighth day desquamation begins, continuing for a week or more, the convalescence being slow, the patient emaciated and pale.

Scarlatina anginosa are cases with the addition of great inflammation and swelling of the pharynx, nose, palate, tonsils and neighboring glands, the swollen glands pressing upon the surrounding parts, causing difficulty of breathing and of deglutition.

Scarlatina maligna are cases with decided nervous phenomena, to-wit: convulsions, delirium and muscular twitching, the temperature reaching 107° to 110°, the pulse rapid, feeble and irregular, the eruption delayed, of a purplish color, and in patches.

Sequelæ.—Chronic sore throat; conjunctivitis; ottorrhœa; chronic diarrhœa; subacute rheumatism; chorea; endocarditis; pleuritis; acute Bright's disease and cutaneous dropsy.

Diagnosis.—A typical case should cause no difficulty; the high fever, rapid pulse. sore throat, and early scarlet eruption, followed by desquamation, should leave no doubt.

Measles.—The above symptoms are absent, and catarrhal symptoms present.

Small-Pox.—Eruption on the third day in spots; changing to pustules with secondary fever.

Dengue or Break-bone Fever.—Absence of the above typical symptoms, and presence of severe pains in the back.

Diphtheria.—Gradual invasion, great prostration, and no eruption, but the frequent complication of scarlatina and diphtheria must be remembered.

Meningitis may be suspected from the symptoms of scarlatina maligna; the epidemic influence, eruption, and rapid pulse, are points of difference.

Prognosis.—Depends upon the character of the attack. Never can be positive of the result. Mortality ranges from ten to twenty-five per cent.

Treatment.—Drug treatment symptomatic. Bovinine in this condition is an ideal food and should be used from the onset all through the stage of convalesence in from five drops to a wine-glassful from every hour to every four hours, according to the age and condition of the patient.

MEASLES.

Synonyms.—Morbilli; rubeola.

Definition.—An acute epidemic and contagious disease; characterized by catarrhal symptoms, referrable to the nasao-broncho-pulmonary mucous membrane, fever, and a crimson eruption which terminates by desquamation.

Cause.—A specific poison, with a special susceptibility for childhood. Contagious by contact, and has been communicated by inoculation. One attack, as a rule, protects from a second. Incubation, ten days.

Pathological Anatomy.—There are no special anatomical characters exclusive of the eruption, which is considered among the symptoms of the disease.

Symptoms.—Onset gradual, irregular chills, fever, the temperature rising to 101° to 102°, muscular soreness, headache, and intense nasal pharyngeal and laryngeal catarrh; on the evening of the second day a decided remission takes place in the fever, the catarrh continuing; on the fourth day occurs an eruption of a crimson color, on the face, soon spreading over the body, in the form of dots, slightly elevated, which coalesce into irregular circles or crescents, and with the appearance of eruption the fever returns, the catarrh is aggravated, but the character of the discharge, instead of remaining clear and watery, becomes turbid, thick, and yellowish, and extends to the bronchial mucous membrane. About the ninth

day (the fourth of the eruption) the eruption fades, the symptoms abate and slight desquamation occurs. Some cough and catarrh may remain for a long period.

Black measles, sometimes called hemorrhagic rubeola, or camp measles, is a variety occurring in camps and jails, in which occur dangerous chest symptoms, and black spots or petechiæ from deteriorated blood, and severe prostration.

Rather common complications are tonsillitis, lobar and catarrhal pneumonia.

SEQUELÆ.—In those of strumous diathesis, scrofula, or phthisis may develop.

DIAGNOSIS.—A typical case begins gradually, with chilliness, nasal catarrh, watery eye, and fever, which decline before the eruption, rising afterward, the eruption crescentic in shape, and of a crimson color.

Scarlet fever, abscence of catarrh, and earlier appearance and different character of eruption with high fever and rapid pulse.

PROGNOSIS.—As a rule, a perfect recovery. If phthisis develop, the progress is bad. Black measles, the majority perish.

TREATMENT.—Drug treatment symptomatic. Bovinine given from the onset will invariably prevent serious complications. It is the ideal food. It should be given in doses ranging from five drops to a wine-glassful from every hour to every four hours, according to the age and condition of the patient.

ROTHELN.

SYNONYMS.—Epidemic roseola: German measles; French measles; false measles.

DEFINITION.—An acute, self-limited disease; characterized by mild fever, suffused eyes, cough, and sore throat, enlargement of the lymphatic glands of the neck, and a rose-colored eruption, in patches of irregular size and shape, appearing on the first day.

CAUSE.—Propagated by infection. That a peculiar germ exists is probable, but thus far it has not been isolated. Incubation, from one to three weeks.

SYMPTOMS.—Onset sudden, with mild fever, suffused eyes, with little or no coryza, sore throat, and enlargement

of the cervical glands, not limited to those about the angle of the jaw, as in scarlatina. Any time from the first to the fourth day appear rose-colored spots, size of a pin head, slightly elevated, which coalescing, form irregular shaped and sized patches, with intervening healthy skin, fading on the upper part of the body while just appearing on the lower. Symptoms all terminate within a week by lysis, the patient showing no ill effects from the attack.

DIAGNOSIS.—From scarlet fever by absence of high fever, the rapid pulse, the color and character of the eruption and the sequelæ.

From measles, by absence of intense catarrhal symptoms, the late appearance of eruption and not of a crescentic shape.

PROGNOSIS.—Most favorable.

TREATMENT.—Drug treatment symptomatic. In this condition Bovinine is the food par excellent. It should be given from the onset through the stage of convalescence, in doses ranging from five drops to a wine-glassful from every hour to every four hours, according to the age and condition of the patient.

SMALLPOX.

SYNONYM.—Variola.

DEFINITION.—An acute epidemic and contagious disease; characterized by severe lumbar pains, vomiting, and an initial fever, lasting from three to four days, followed by an eruption, at first papular, then vesicular and afterwards postular; the development of the pustule being accompanied by a secondary fever, during the presence of which grave complications are prone to occur.

CAUSES.—A specific poison, whose nature is unknown, maintaining its contagious vitality for a long period. There is no period, from the initial fever to the final desquamation, when the disease is not contagious, although the stage of suppuration is the most virulent. One attack, as a rule, protects from a second. Vaccination has a positive protective influence from the disease, an extensive observation having fully proven that in proportion to the efficiency of vaccination is the rarity and mildness of variola. Incubation, fourteen to sixteen days.

Pathological Anatomy. — A granular and fatty degeneration occurs in the liver, spleen, kidneys and heart. The pustules are found in the larynx, trachea, bronchial tubes, and on the pleura.

Varieties.—Discrete; confluent; malignant; varioloid or modified smallpox.

Symptoms.—Discrete form. Onset sudden, with a violent chill, vomiting, and agonizing pains in the back, shooting down the limbs; fever, in short time rising to 103° or 104° F.; full, strong and rapid pulse, ranging from 100° to 130°; the face red, eyes injected, intense headache and sleeplessness, delirium and convulsions occur at times. During the third day the characteristic eruption makes its appearance, first on the forehead and lips, consisting of coarse, red spots; with the appearance of the eruption all all the marked symptoms of the fever abate, the patient feeling quite comfortable. On the fifth day of the disease the spots become papules; on the sixth day, transformed into vesicles, which are soon umbilicated; on the eighth day the vesicles change to pustules; on the ninth day the pustules are entirely purulent, and each surrounded with a broad red band—the halo or areola, the face becoming swollen, and the features distorted; on the eleventh day, pus oozes from the pustules, and drying, forms the scab or crust, which, on the seventeenth totw enty-first day drops off, leaving a red, glistening depression or pit, soon changing into a white cicatrix. With the formation of the pustules (eighth day) severe rigors and fever set in, and a characteristic odor is emitted, all the original symptoms returning; this secondary fever is the most critical period of the disease, and is generally attended with violent delirium. In favorable cases the secondary fever subsides after three or four days, and convalescence is established.

Confluent smallpox differs from the discrete in the greater severity of all the symptoms and the marked prostration of the patient, the eruption appearing during the second day, the pustules coalescing into large patches, causing great distortion of the features.

Malignant smallpox is characterized by the greater intensity and the irregularity of the symptoms, death resulting before the characteristic eruption appears, by con-

vulsions or coma. In these cases, hemorrhages are frequent, and petechiæ are observed.

Varioloid, or modified smallpox, is the form modified by previous vaccination or by a former attack of smallpox. Its course is shorter and milder than the other forms, the eruption appearing a day later, and is not attended with secondary fever.

Complications.—During the course of the secondary fever there is a great tendency to grave inflammations, such as pleuritis, pneumonitis and dysentery During convalescence, boils and abcesses on the skin are frequent.

Diagnosis.—Cannot be confounded with any other disease if it has typical symptoms, such as chill, vomiting, pains in back and legs, high fever and pulse, all declining on third day, when the eruption appears, first spots, then papules, then vesicles, finally pustules, drying and forming crusts, and with the marked secondary fever.

Prognosis.—Depends upon the variety of the attack, the age of the patient, and whether vaccinated or not. Discrete, mortality four per cent.; confluent, fifty per cent.; malignant, all perish; under five years and over forty years, fifty per cent. die.

Treatment.—Drug treatment as indicated. Bovinine should be given to the exclusion of all other food, being given in milk until after the pustular stage, when a light general diet may be added. It should be given in doses from five drops to a wineglassful, according to the age and condition of the patient.

In severe cases, where the vesicles have formed and healing is slow, a dressing of Bovinine pure over the entire surface will bring about a rapid and healthy cicatrization, and prevent deep pitting.

VACCINATION.

Difinition.—Inoculation with the matter of vaccina or cowpox-bovine virus. The person properly vaccinated is, as a rule, protected from an attack of smallpox, and especially from a severe or fatal attack.

Vaccination should be performed at least twice in every individual, viz: During infancy and at puberty; and it is safer to have it again performed if special exposure be liable to occur.

In practicing vaccination the skin should be rapidly scraped until the true skin is reached and is ready to bleed, the lymph being then brushed over the abraded surface; or, instead, making three or four horizontal and transverse cuts, about four lines long, and rub the virus over them; a little blood, but not much bleeding, should be caused.

SYMPTOMS.—If the vaccination "takes," on the third day a papule appears; on the sixth day a vesicle has formed, with a central depression; on the eighth day a pustule, fully formed and distended with lymph, with a reddish areola, which becomes very wide. The areola begins to fade on the tenth day, the pustule begins to dry, and by the fourteenth day a brown, mahogany scab or crust has formed, which is detached about the twenty-third day. The cicatrix is circular, depressed, radiated and foveated, becoming after a time, paler than the surrounding integument.

During the course of vaccination, more or less constitutional disturbance occurs, especially in children.

Eczematous and papular eruptions often develop in strumous children, for which the virus is unjustly held responsible.

VARICELLA.

SYNONYM—Chicken-pox.

DEFINITION.—A mild, slightly contagious, febrile affection; characterized by a moderate fever, and the appearance of a vesicular eruption, drying up and falling off in from three to five days.

CAUSE—A peculiar poison; attacking only children; occurring sporadically and as an epidemic.

SYMPTOMS.—Moderate fever, thirst, anorexia and constipation, followed by the eruption of vesicles, which rapidly dry, and within the week drop off, leaving a slight pit. Pustules almost never occur. Symptoms are so slight that, were it not for the vesicles, the affection would be often overlooked. The eruption appears on the trunk and extremities, very rarely on the forehead and in the mouth.

PROGNOSIS.—Most favorable.

TREATMENT.—In all anæmic patients where vaccination is neccessary, Bovinine given a week prior to the time of vaccination and continued until after the arm is healed,

will greatly lessen the chances of anything like a serious complication, and where the ulcer refuses to heal and has formed, local applications of Bovine will bring about a rapid and complete healing. It should be given in from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient.

ERYSIPELAS.

Synonyms.—Erysipelatous dermatitis; the rose; St. Anthony's fire.

Definition.—An acute, specific, infectious disease; characterized by a fever of low type, and a peculiar inflammation of the skin, generally of the neck and face. This inflammation exhibits a marked tendency to spread, to induce serious infiltration and suppuration of the areolar tissue, and to affect the lymphatic vessels and glands.

Cause.—A poison, the nature of which is unknown. Feebly contagious. One attack predisposes to another. The etiology of idiopathic (medical) and traumatic (surgical) erysipelas are identical.

Symptoms.—Onset sudden; a chill, followed by fever, which soon reaches 104° or 105°, frequent pulse, 100 to 130, coated tongue, nausea and vomiting, severe pains in the limbs, with epistaxis in adults and convulsions in children, and often diarrhœa.

Delirium is frequent, and in those of alcoholic habits, it resembles delirium tremens.

The eruption soon follows the chill, beginning in red spots, which rapidly coalesce and spread; a sense of heat, tension and tingling is caused by the great œdema, which presents a tense, shiny appearance, the swelling being so great at times as to close the eyes and distort the features. In many cases small vesicles develop, which may coalesce, forming blebs of considerable size, containing a clear yellow serum. After five or six days the eruption begins to subside, the symptoms abate, the part affected becomes tender, and there is moderate desquamation.

During the height of the attack albumen appears in the urine, so that the possibility of uræmic symptoms must be remembered.

When extensive infilteration into the areolar tissue occur, the swelling and tension become greater, and it is termed phlegmonous erysipelas.

When the eruption spreads to different parts of the body, it is termed erysipelas ambulans.

Complications.—Thrombosis of cerebral capillaries or sinuses, or "erysipelas of the brain" is explained by the intimate anatomical connection of the facial vein with the pterygoid plexus and cavernous sinus.

Oedematous laryngitis, from extension to the larynx.

Pneumonia, pleurisy and meningitis are frequent complications.

Diagnosis.—Not difficult. The fever, early spreading eruption, with burning, swelling, tension and tingling, and albuminous urine, separate it from the other eruptive fevers and erythema.

Prognosis.—Usually favorable. Unfavorable if it attack drunkards; if it becomes gangrenous; if thrombosis of sinuses occur, or if it extends to the larynx.

The convalescence, even from the mildest attack, is slow, the patient continuing weak and anæmic for a long time.

Treatment.—Drug treatment symptomatic. Internally Bovinine should be given in doses ranging from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient. It acts as an ideal food and by giving the stomach rest prevents any gastric complication. Its ability to restore the blood to its normal standard enables nature greatly in its power of overcoming the condition. As a local dressing iodoform Bovinine has met with the most happy results. It should be applied T. I. D. It seems to start up more rapidly the osmotic process than anything yet employed, and as an antiphleugistic it is second to none.

DENGUE.

Synonyms.—Break-bone fever; neuralgic fever; dandy fever. The word dengue is pronounced dangay.

Definition.—An acute, epidemic, febrile disease, consisting of two paroxysms of fever with an intermission. The first paroxysm is characterized by high fever, distressing pains in the joints and muscles, and a peculiar eruption; the second paroxysm is characterized by a

milder fever, an eruption of different character, attended with intense itching, by some recurrence of the joint pains, and by debility.

CAUSE.—Unknown, but it is evident that a peculiar condition of the atmosphere has some influence in its development.

SYMPTOMS.—Onset sudden, fever, 103° to 105°, intense headache, burning pains in the temples, backache, severe aching and swelling of the joints and stiffness of muscles, nausea, vomiting, constipation and the appearance of a rash, resembling scarlatina, from which the disease has been mistaken for scarlatinal rheumatism. After some hours, to two or three days, a distinct intermission obtains, of one or two days' duration.

The onset of the second paroxysm is also sudden, but the symptoms are much less severe, although the patient is greatly debilitated; it is at this time that the characteristic eruption appears, being either erythematous or rubeolous, and attended with intense itching, remaining for about two days, when desquamation occurs and convalescence is established, but is prolonged by the great debility of the patient. Average duration of the disease eight days. Relapses are common.

DIAGNOSIS.—Most apt to be mistaken for acute articular rheumatism, especially during the first paroxysm, but the course of the disease and the epidemic influence should prevent such an error.

The eruption might mislead for scarlet fever or measles, were it not for the severe joint and muscular pains.

PROGNOSIS.—Favorable.

TREATMENT.—Drug treatment symptomatic. Bovinine should be given from the onset, and in the majority of cases it will be found that the condition runs a very short course, devoid of all complications. In severe cases the Bovinine should be used exclusively as a food. It should be given in doses ranging from five drops to a wineglassful, from every hour to every three hours, according to the age and condition of the patient.

A "SAMPLE" OF BLOOD POWER.

I had two patients with typhoid fever, in their sixth week. I had them on the Woodbridge treatment, but they seemed to get weaker and more exhausted every day. Almost from the first day of the administration of Bovinine to the fever patients they commenced improving, and are doing nicely. D. W. HENDERSON, M. D.

Marysville, Ohio, September 22, 1897.

BLOOD AS SUSTENANCE IN TYPHOID FEVER AND GASTRO-INTESTINAL DISEASES.

Thousands of physicians, like those whose contributions appear below, have long been supplying vital blood to their patients in bovinine for typhoid fever, hæmorrhagic exhaustion, etc., supposing it to be a peculiarly digestible "food." Multitudes of their testimonials, often very wonderful, have accumulated for ten years; none suspecting the secret of its unparallelled virtue.

Remarks by Dr. M——.

In typhoid fever, a disease in which the waste of the nitrogenous elements of the body is excessive and where the function of assimilation is markedly impaired, the blood treatment is of especial value, being very readily absorbed for the most part from the intestinal mucous membrane. Not only is the excessive emaciation prevented, but during the whole course of the disease the heart action remains much stronger, and owing to the prevention of the excessive waste and degeneration of the tissues, there is not the usual need for cardiac stimulants.

In actute gastritis, where all food is rejected, Bovinine in small quantities will be retained, and being easily absorved, allows the inflamed mucous membrane to regain its normal tone. In the treatment of chronic gastro-intestinal diseases, where emaciation and weakness are the most marked symptoms, the administration of bovinine gives results that are most satisfactory. In these cases the effect may be noticed from the start, and is continuous and steady.

In carcinoma of the stomach, where all foods are vomited, bovinine is retained and actually prolongs life, preventing the rapid emaciation and starvation and the pain and discomfort caused by indigestion of food,

AUXILIARY BLOOD IN TYPHOID FEVER.

Case in Sound View Hospital, by Dr. Biggs.

George T——, Bridgeport, Conn.; American; age 38; admitted to Sound View Hospital, November 9, 1898, with all the symtoms of a well-defined case of typhoid fever the first week; increasing temperature, frequent pulse, coated tongue, nausea, diarrhœa, and headache. Twenty-four hours after his admission a few spots appeared upon the abdomen and chest. He was put to bed, given a mercurial purge, and every three hours five grains of quinine, ten drops of eucalyptus, one drop pure carbolic acid, and two drops tincture of iodine. Also a tablespoonful of bovinine in milk every two hours; this to the exclusion of all other food. To reduce the fever, he was also given ten grains of antikamnia every three hours as indicated. The second week his fever continued, slightly increased, pulse frequent and compressible, abdomen tender, tympanitic and gurgling in the right iliac fossa, nocturnal delirium, severe and constant headache, some bronchial rales, sordi of the teeth and lips, persistent diarrhœa; also some disturbance of vision. During all this time he was nourished on Bovinine to the exclusion of all other food.

Third week, the fever changed from continuous to remittent. Evening excerbations continued as high as the preceding week, and all symptoms remained about the same, until near the end of the week, when a marked amelioration appeared.

Fourth week, fever decidedly remittent, almost normal in morning; pulse less frequent, and fuller; tongue clean; abdomen less in size; diarrhœa ceased; and the patient had passed well into the stage of convalescence. Up to time the patient had lived entirely on Bovinine and milk; but his condition, nevertheless, as to strength and nutrition, was excellent. He was now given a wine-glassful of Bovinine in milk every two hours, and a teaspoonful of elixir of iron, quinine and strychnine, every three hours, and a light diet.

His convalescence was now rapid and complete, and on December 12th he was discharged cured.

I can safely say that for sustaining nutrition and strength in this disease, the auxiliary blood supply here employed is the ideal desideratum, requiring, as it does,

little or no digestion, but, on the contrary, being almost immediately absorbed into the circulation, it gives the bowel the rest that is indispensable during the progress of this dread disease.

DIRECT BLOOD SUPPLY IN THE TREATMENT OF TYPHOID FEVER.

By Prof. Wm. F. Waugh, M D.

* * * * *

The condition of the digestive system during an attack of typhoid fever, as shown in this brief sketch, warrants our first proposition: That during the course of this fever the power of digesting food is impaired, always seriously, and sometimes almost entirely lost, from the suspension of secretion.

My second proposition is, that food that will not be digested in the stomach or bowels of a typhoid fever patient, is not only useless, but harmful; as in the absence of digestion, decomposition is certain to occur, with the production of substances that are certain to be injurious to the patient. I must refer to this cause the tympanites that occasion so much trouble.

The conclusion is, that in typhoid fever the stomach and bowels should not be looked upon as digestive organs, but simply as receptacles for food that has been previously digested.

That absorption may take place cannot be denied. The whole gastro-intestinal mucous membrane is adapted for absorption. Liebermeister is right in insisting upon the liberal use of water. The digestion is thereby improved, and the emaciation largely prevented. If patients do not ask for it, water should be given systematically in stated quantities.

Milk, according to Dujardin-Beaumetz, can only act as salt and water, as neither the fat nor the casein can be absorbed.

The disease affecting the glandular apparatus of the intestines, absorption through this channel is impossible, and the patient can only be nourished by means of absorption through the veins. In typhoid fever, the glands drained by the thoracic duct are rendered incapable of absorbing food. The only exceptions to this rule lie in the fact that

all of Peyer's glands may not be wholly disabled at the same time, as the glandular affection is somewhat progressive from above downward, and some of the glands may not be affected.

It becomes, then, a question whether we can supply food at all during a typhoid attack; whether any substance can be directly absorbed into the veins without passing through the intestinal glands, and yet be assimilated.

There are two substances in which this may be possible. Egg albumen is directly absorbed into the tissues of the growing chick, without digestion or assimilation. Bovinine, consisting of beeves' blood and egg albumen, preserved with glycerine and whiskey, with a little boric acid, answers the need most admirably. It has been my reliance in feeding to typhoid cases for many years, and its success has demonstrated the correctness of the above proposition.

Nothing is so readily absorbed as egg-albumen and blood, as nothing comes so near the composition of the human blood. The glycerine assists in keeping the bowels soluble; the whiskey is a useful stimulant, and the boric acid assists the antiseptic remedies with which most practitioners now treat typhoid fever. But there is something more than this in bovinine. Some years ago I mentioned this, and called attention to the fact that in blood we have a substance that has been not only digested and assimilated, but *vitalized*. It is a living fluid, whose existence is identical with that of the individual in whose arteries it flows. I speak simply as a clinical observer, but I feel sure that when the science of biologic therapeutics has progressed a little farther, we will be furnished the reasons for my present claim; that there is in blood as a food, a value not wholly explicable by its chemical composition. Stern has shown that human blood-serum is destructive to the Klebs-Eberth bacillus, and that the serum of persons convalescing from typhoid fever has an attenuating effect upon the toxicity of typhoid bacillus cultures. The effect of the serum of animals insusceptible to typhoid fever seems to be the next step for investigation.

The net results of the application herein recommended are these: 1. Avoidance of the gastro-intestinal irritation due to undigested food. 2. The sustaining of the patient's strength, by really feeding him (as distinguished from the

mere placing food in his stomach), and the consequent avoidance of collapse, and all the long train of ills that come from malnutrition. 3. The avoidance of the excessive emaciation, so often seen after protracted attacks of typhoid fever. 4. Shortening of the convalescene period. 5. I put forward, tentatively, my impression that the secondary degenerative lesions of muscles, nerves, and other tissues, are not wholly due to continued high temperature, but, in part at least, to innutrition; and that these lesions are not nearly so marked when the patient has been fed upon the system herein advocated.

Quite recently a very remarkable series of cases have been reported, in which chronic ulcers, even of many years' duration, have been cured by the local application of bovinine. Several hundreds of such cases have been so treated with great success. These go so far to confirm my views; for if bovinine can be absorbed from the surface of an ulcer, or from the subcutaneous tissue about it, and so improve the local nutrition as to bring about healing, how much more likely that such a substance can be absorbed from the stomach, and keep up the general nutrition.

SUPPLIED BLOOD IN TYPHOID FEVER WITH COMPLICATIONS.

BY ROBERT FRAME, M.D., MILFORD, DEL.: CASE I.

I have tested this treatment in many cases. In a case occurring in a patient, Mr. W. McColley, living near here; disease, typhoid fever; there was complication of brain and stomach, low muttering delirium, subsultus tendinum, tympany, soreness in the right hypogastric region, diarrhœa, and great irritability of stomach, in so much that it would reject everything swallowed. The patient was very anæmic and weak. At this time I commenced using bovinine. It was not only retained, but was readily absorbed. From this time the patient made a rapid recovery.

"I have been engaged in the practice of medicine for thirty-four years, having graduated at Jefferson Medical College of Philadelphia, class of 1859; and in all this long experience have never met with anything that will compare with this preparation of blood in all cases of irritable stomach and exhaustion. I hope to see it fully endorsed by the profession as The Remedy."

Chicago, Ill., November 3, 1888.

I have been prescribing bovinine in hospital and private practice for the past two or three years in cases of malnutrition or wasting produced by typhoid fever, tuberculosis and allied conditions, and find it of marked benefit in sustaining the strength of the patient. I usually combine it with milk. D. A. K. STEELE, M. D., 1801 State St.

Winona, Minn., February 4, 1888.

I have used bovinine with great satisfaction in cases of malassimilation, chorea and typhoid fever. In the latter disease it is a nutrient of wonderful value. In one case, a young lady whose temperature reached 105 degrees for two days, with other very unfavorable symptoms, it did glorious work, and it was continued during subsequent convalesence. L. G. WILBERTON, M. D.

Indianapolis, Ind., December 30, 1887.

I have given bovinine a thorough trial with convalescents from typhoid fevers and gastric troubles with a great deal of satisfaction. I have also used it in enteric diseases of children with wonderful results. I have truly found the preparation quite as valuable as it was represented to me. F. O. CHAMBERS, M. D.

Detroit, Mich., January 10, 1888.

I have used bovinine in several cases of typhoid fever with the most satisfactory results. Have used it in two cases of persistent vomiting in pregnancy, also with excellent results. D. WHEELER, M. D., 452 Antoine St.

Indianapolis, Ind., December 8, 1887.

I have used bovinine in a case of typhoid fever with great effect. The patient's assimilative powers were restored at once, she being almost moribund.

W. F. BARNES, M. D.

DEPARTMENT OF PHYSIOLOGICAL THERAPEUTICS.

The greatest therapeutic discovery of the age, and of the ages, is that where we cannot produce good blood, we can introduce it.

HÆMATHERAPY AT SOUND VIEW HOSPITAL

STAMFORD, CONNECTICUT

T. J. Biggs, M.D

MALIGNANT SCARLET FEVER—BLOOD CURE PER SE.

May M——, age 10, Irish, admitted Nov 1, 1900. Diagnosis, Scarlet Fever.

Oct 31st, the child's mother said the little patient had had a decided chill, followed by vomiting. Shortly after this she complained of a good deal of pain in her throat, which was followed by high fever. On entering the hospital, she had a temperature of 105°, a very rapid pulse, 120. There was already a beginning of the chacteristic eruption.

The little patient was put in an isolated ward, and thoroughly quarantined. Shortly after this the rash spread over the entire body. There was much burning of the surface; the patient complained of great irritation of the throat and difficulty in delutition. The throat, on inspection, presented the appearance of a violent catarrhal inflammation, the tongue was red, with prominent papillæ (the strawberry tongue). There was severe headache and great restlessness, and at times, the little sufferer was delirious; quite a persistent diarrhœa was present.

The nurse was ordered to spray the throat with Bovinine pure and hydrozone, followed by Thiersch solution, and then Bovinine pure; this to be repeated every three hours; and to give half a teaspoonful of bovinine every hour in a little milk. Outside of this, the only treatment employed was a symptomatic one, a little something as necessary, to reduce the temperature and keep the patient quiet.

Nov. 6th, the bovinine was ordered a teaspoonful every hour, and the throat applications three times every 24 hours.

On Nov. 7th, the fever had declined and desquamation began. The nurse was now ordered to anoint the entire body with vaseline, into which had been rubbed some Thiersch powder. The bovinine continued as before.

On the 8th, the throat condition had entirely disappeared. The tongue, outside of being abnormally red, was normal;

the headache has disappeared and the patient was resting.

On the 10th, the bovinine was ordered three teaspoonfuls every three hours in milk, and a light general diet. At this time desquamation had almost ceased, the temperature and pulse were normal, and the little patient was feeling splendidly. Treatment continued.

Nov. 14th, desquamation had ceased, the patient was sitting up in an invalid chair as long as three hours at a time.

Nov. 18th, the patient was allowed to walk around the room.

Nov. 23rd, she was discharged, cured.

Although this case presented every symptom and indication of well-defined case of Scarlatina maligna, she was nevertheless carried through rapidly to an absolute recovery without the development of a single complication, and at the time of her discharge, a thorough physical examination revealed her condition to be absolutely normal.

DISEASES OF THE MOUTH.

CATARRHAL STOMATITIS.

SYNONYMS.—Simple stomatitis; erythematous stomatitis; catarrh of the mouth.

DEFINITION.—An acute catarrhal inflammation of the whole or a portion of the mucous membrane of the mouth and tongue, characterized by pain, redness, swelling and disordered secretion. Most common in infants and children. Chronic stomatitis occurs mostly in adults, the result of alcoholic or tobacco excesses.

CAUSES.—Introduction of hot or irritating substances into the mouth; difficult dentition; secondary to disorders of the stomach, to measles, scarlet fever and variola.

PATHOLOGICAL ANATOMY.—The buccal mucous membrane and tongue have a dark red appearance, are much swollen, the tongue often appearing as if too broad to lie between the teeth, the sides showing the impressions of the teeth; the secretions are at first lessened, afterward increased, a turbid mucous covering the cheeks, gums and tongue, thus giving a coated tongue.

SYMPTOMS.—Oral catarrh begins with a burning, smarting pain, and tension in the mouth. Very young children refuse to nurse, have slight fevers, disordered stomach, are fretful and sleepless, craving cooling drinks.

The sense of taste is blunted, and there is usually an unpleasant bitter taste in the mouth.

If the catarrh becomes chronic, the breath has a fetid odor and the tongue is coated in the morniug, the taste is disordered, and there is generally more or less depression of spirits.

DIAGNOSIS.—If the buccal cavity be examined, the condition is readily discerned.

PROGNOSIS.—Recovery is the rule for the acute variety. The chronic cases are usually due to the use of tobacco or or alcohol, and are only modified by the absolute withdrawal of the exciting cause.

TREATMENT.—Drug treatment symptomatic. Internally Bovinine should be given in doses ranging from five drops to a wineglassful, from every hour to every four hours, according to the age and condition of the patient. It is an ideal food, and will certainly shorten the attack and sustain the patient. The mouth should be gently cleaned at least three times a day in the following manner: Bovinine pure should be applied over the entire diseased surface, after which Hydrazone one-third and distilled water two-thirds. When reaction has ceased, the mouth should be cleaned out with Thiersch solution and Bovinine pure applied.

FOLLICULAR STOMATITIS.

SYNONYMS.—Aphthæ; vesicular stomatitis; croupous stomatitis.

DEFINITION.—An acute inflammation of the follicles and mucous membrane of the mouth and tongue, characterized by a fibrinous or croupous exudation; the exudation first appearing in isolated spots (aphthæ discrete), afterwards coalescing, and forming large and irregular-sized patches (aphthæ confluens), which rupture, leaving an ulcer, which slowly heals.

CAUSES.—A disease principally of childhood. Difficult dentition; disorders of digestion; uncleanliness, such as

neglect to rinse the child's mouth after nursing; with measles and diseases of the buccal cavity.

Pathological Anatomy.—Begins as a small, whitish paulo-vesicular elevation, semi-transparent, hard and tender, with a distinct red zone about their base; there may be as few as six, or as many as twenty; they may remain isolated (aphthæ discrete) or coalesce (aphthæ confluens); they are regarded as either a peculiar deposit or a local croupous exudation. After a day or two they rupture, leaving an irregular, white or grayish ulcer, which slowly heals. The seat of the affection is the internal surface of the lips and cheeks, the gums, tongue and roof of the mouth.

Symptoms.—In infants the pain is so severe that the child refuses to nurse. In older children, pain from talking, mastication and deglutation. Salivation is marked, the saliva dribbling from the mouth. There is slight feverishness, fretfulness and sleeplessness. Digestion is impaired, and quite commonly diarrhœa occurs. A disagreeable penetrating odor escapes from the buccal cavity.

Diagnosis.—Impossible to confound with any other affection if the buccal cavity is examined.

Prognosis.—Always favorable.

Treatment.—Drug treatment symptomatic. Internally Bovinine should be given in doses ranging from five drops to a wineglassful, from every hour to every four hours, according to the age and condition of the patient. It is an ideal food and will certainly shorten the attack and sustain the patient. The mouth should be gently cleaned at least three times a day in the following manner: Bovinine pure should be applied over the entire diseased surface, after which Hydrazone one-third and distilled water two-thirds. When reaction has ceased, the mouth should be cleaned out with Thiersch solution and Bovinine pure applied.

ULCERATIVE STOMATITIS.

Synonyms.—Diphtheritic stomatitis, gingivitis ulcerosa.

Definition.—An acute diphtheritic inflammation of the mucous membrane of the mouth, continuing until extensive and unhealthly ulceration occur. It usually begins on

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the margin of the lower gums, and often extends to the lips, cheek or tongue.

Causes.—Usually seen in children only. Most frequently in the families of the poor, the result of unfavorable hygienic surroundings, personal uncleanliness and poor food. Often seen in those reduced by severe acute disease. Perhaps contagious, as epidemics are not rare.

Pathological Anatomy.—The gums first appear congested, swollen, bleeding readily and separated from the teeth; soon a firmly adherent deposit in the form of patches appears, at first whitish, speedily becoming gray or even black, from disintegration, becoming soft and pulpy, the separated slough leaving irregular shaped ulcers, with raised margins from œdema of the surrounding tissue. They are not deep and their surface is covered with a pulpy yellowish substance. The morbid process usually extends to the inner side of the lips, cheeks, and to the tongue.

Symptoms.—Pain constantly, aggravated by mastication or deglutition. Food and drink must be of the blandest character. The mouth is hot, the saliva dribbles away, mixed with blood and shreads of pulpy matter, the breath is fetid, the appetite, digestion, and bowels disordered. The patient is feverish, fretful and sleepless. There is always enlargement and tenderness of the sub-maxillary glands. The affection is often associated with enterocolitis.

Diagnosis —Apt to be confounded with gangrenous stomatitis, than which, however, there is less constitutional symptoms and a slower course of the malady.

Prognosis.—Favorable, if promptly and properly treated, the ulcerated surface rapidly heals, although quite commonly some teeth are lost.

Treatment.—Drug treatment symptomatic. Internally Bovinine should be given in doses ranging from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient. It is an ideal food and will certainly shorten the attack and sustain the patient. The mouth should be gently cleaned at least three times a day in the following manner: Bovinine pure should be applied over the entire diseased surface, after which Hydrazone one-third and distilled water two-thirds When reaction has ceased, the mouth should be cleaned out with Thiersch solution and Bovinine pure applied.

ULCERATIVE STOMATITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Miss M——, Stamford; age 28; June 2nd, 1898; large ulcer at the base of the tongue—one beneath and near the tip, and one around the mouth of Steno's duct, on the right side. After antiseptic preparation of surfaces, patient was ordered to apply Bovinine, once in a while, by putting a teaspoonful in her mouth and holding it there. The ulcers had been so sore that the patient could not take anything in her mouth without such great pain that she had been almost starved. But after beginning the Bovinine application, the pain ceased, and she could enjoy a solid diet without much inconvenience. At the same time, the ulcers began to heal rapidly, together with improvement in general condition. July 14th, 1898, the ulcers were completely healed and the patient discharged.

ULCERATIVE STOMATITIS.

By Dr. D——, New York.

Mary Burke; age 16; July 6th, 1897; stomatitis over a year; treated at various institutions without benefit; assimilation sadly impaired in consequence of mastication and nutrition prevented by soreness and absence of ptyalin ferment. Sterilization of mouth by peroxide-on-Bovinine Thiersch, t. d., holding Bovinine in mouth between times. In ten days, food could be resumed, and cure was complete July 22nd, with gain in weight of seven pounds.

THRUSH.

Synonyms.—Muguet; sprue; white mouth.

Definition.—An inflammation of the mucous membrane of the mouth, associated with or caused by the growth of a parasitic plant, the oidium albicans; characterized by pain, disorders of digestion and of the bowels.

Causes.—The development of the thrush-fungus, oidium albicans, is prompted by all those conditions designated as unhygienic, by debilitated conditions of the general system, and by neglect to thoroughly rinse the mouth after nursing or bottle-feeding.

The age is considered a predisposing cause, seldom being seen after two years of age. In adults, only toward the last stages of cancer or consumption.

Pathological Anatomy.—The mucous membrane of the mouth assumes a dark red appearance in isolated patches, on which whitish points appear, which rapidly coalesce into large areas. They closely resemble curdled milk, from their soft consistency. These whitish points consist of epithelium and fat, in which are embedded the sporules and filaments of the fungus. The deposit first appears about the angles of the mouth, soon extending to all parts af the cavity, often to the pharynx and œsophagus. The mouth is usually swollen and tender, the breath often fetid.

Symptoms.—Pain, aggravated by nursing or mastication. The lips are swollen, the saliva is increased the breath hot and somewhat fetid. There is usually increased temperature. Diarrhœa is frequent, the stools green and sour, causing an eryphema of the buttocks.

Diagnosis.—The curdle-like appearance of the deposit, showing the presence of parasites, upon microscopical examination, will prevent error.

Prognosis.—Favorable, unless occurs towards the termination of exhausting diseases.

Treatment.—Drug treatment symptomatic. Internally, Bovinine should be given, in doses ranging from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient. It is an ideal food and will certainly shorten the attack and sustain the patient. The mouth should be gently cleaned at least three times a day in the following manner. Bovinine pure should he applied over the entire diseased surface, after which Hydrazone one-third and distilled water two-thirds. When reaction has ceased, the mouth should be cleaned out with Thiersch solution and Bovinine pure applied.

GLOSSITIS.

Definition.—An inflammation of the parenchyma of the tongue; characterized by great swelling of the organ, with difficult mastication, deglutition and vocalization. The affection may be either acute or chronic.

Causes.—The acute variety is usually the result of some direct irritation of the tongue, such as direct injury, contact of boiling liquids, the action of acid or corrosive sub-

stances, or the sting of the tongue by an insect, such as the bee or wasp.

The chronic variety is generally circumscribed; it may follow the acute; be due to the sharp edges of the teeth, or the use of a tobacco pipe.

Pathological Anatomy.—Acute glossitis begins with intense hyperæmia, redness and swelling of the organ; the size often becomes so gray that the tongue is too large for the mouth and thus protrudes between the teeth; its surface is covered with a thick secretion, and it becomes a pale or grayish color. The swelling may rapidly decline, or abscesses may form, which leave a more or less decided depressed cicatrix.

Chronic glossitis occurs usually along the edges of the organ, the cicatrical changes being in the circumscribed hard spots. If the entire tongue is affected with chronic inflammation, the action is superficial, and has been termed "psoriasis of the mouth."

Symptoms.—Acute glossitis begins rather abruptly with fever, increased pulse, restlessness, anxiety, enlargement of the tongue, a sensation of heat in the mouth, with pain, and increased flow of saliva. Mastication and deglutition becomes difficult, if not impossible, the voice muffled, and dyspnœa decided. The glands at the angles of the jaw are enlarged, which, in turn, compress the vessels of the neck. When suppuration supervenes, the constitutional symptoms become severe and the oral symptoms are intensified. Death has occurred from suffocation in severe cases.

Chronic glossitis presents pain as the chief symptom, aggravated by movements of the organ.

Diagnosis.—The rapid course of acute glossitis should prevent its being mistaken for any other affection. Chronic glossitis, if severe, might be mistaker for cancer of the tongue, although the slow and mild progress of the former contrasts strongly with the rapid, severe and painful course of the latter, with its marked constitutional symptoms.

Prognosis.—Acute glossitis usually terminates in recovery within a week, although the danger of suffocation must always be remembered.

Chronic glossitis is an incurable malady in the majority of instances.

TREATMENT.—Drug treatment symptomatic. Internally, Bovinine should be given in doses ranging from five drops to a wineglassful, from every hour to every three hours, according to the age and condition of the patient. It is an ideal food and will certainly shorten the attack and sustain the patient. The mouth should be gently cleaned at least three times a day in the following manner: Bovinine pure should be applied over the entire diseased surface, after which Hydrazone one-third and distilled water two-thirds. When reaction has ceased, the mouth should be cleaned out with Thiersch solution and Bovinine pure applied.

ACUTE GASTRIC CATARRH.

SYNONYMS.—Acute mild gastritis; gastric fever; bilious fever; acute indigestion; subacute gastritis.

DEFINITIONS.—An acute catarrhal inflammation of the mucous membrane of the stomach; characterized by fever, loss of appetite, nausea, with occasional vomiting, painful digestion, irregularity of the bowels, and in severe attacks, vertigo (stomach vertigo.)

CAUSES.—Deficient quantity of or quality in the gastric juice. Errors in diet, insufficient mastication of food, swallowing liquids, which are either too hot or too cold, and particularly the abuse of alcoholic liquors.

Often secondary to infectious diseases, such as scarlet fever, measles, smallpox, diphtheria, and typhoid fever. Occasionally the result of sudden changes of temperature.

PATHOLOGICAL ANATOMY.—The mucous membrane is irregularly congested, and engored and covered with a grayish, semi-transparent and tenacious mucous, having an alcoline reaction. The true gastric juice is secreted in lessened amount, or is entirely suspended.

SYMPTOMS.—At first loss of appetite, at times disgust for food, heavily coated tongue, bad taste and breath, persistent nausea, and at times vomiting, first of undigested food ther viscid mucus, acid and bitter, and finally, bilious matter; moderate irritative fever is present with headache, considerable thirst and flashes of heat, with sensation of burning in the palms of the hands and soles of the feet; acid drinks eagerly sought after; digestion imperfect, giving rise to pain, tenderness, feeling of weight and eructations; bowels often loose, sometimes, however, constipated,

vertigo with pain in the nucha, is a common symptom in many cases, causing great anxiety and depression of spirits. The urine is scanty, containing lithates and pigment. The symptoms are aggravated by errors in diet, and if saccharine or fatty articles are taken, heart-burn occurs. Toward the termination of an attack herpetic eruptions appear about the mouth.

Diagnosis.—Acute gastric catarrh with fever may be confounded with remittent and typhoid fever of the first week, but all doubts will disappear as these maladies develop. The vertigo may be mistaken for cerebral disease, but the disappearance of this symptom when stomachic treatment is inauguarted, removes all apprehension.

Prognosis.—Favorable. Duration about a week; recovery slow, even under treatment, as far as perfect digestion is concerned.

Treatment.—Drug treatment symptomatic. In this condition small, often repeated doses of Bovinine should be given in peptonized milk and lime water until the acute inflammatory stage has subsided, when the quantity may be gradually increased. It is well to begin in from five drops to thirty drops from every hour to two hours, and then up to the normal standard of five drops to a wineglassful every hour to every four hours, according to the age and condition of the patient.

ACUTE GASTRITIS.

Synonym.—Toxic gastritis.

Definition.—An acute and violent inflammation of the of the mucous, submucous and muscular coats of the stomach, with loss of tissue; characterized by great pain, constant vomiting of blood-streaked or bloody mucous and symptoms of collapse.

Causes.—Ingestion or irritant and corrosive poisons, such as the mineral acids, arsenic, corrosive sublimate, copper, and carbolic acid.

Pathological Anatomy. — The mucous membrane is vividly red and injected, more marked at some portions than at others; it is soft and friable; erosions are irregularly scattered, and the submucous, muscular, and at times serous coats show decided destructive changes. The gastric tubules are destroyed in large numbers. In many cases

the oral mucous membrane presents signs of severe inflammation.

Symptoms.—Immediately, or soon after swallowing the irritant there ensues a deadly nausea, with rapid and persistent vomiting; first, of the contents of the stomach acted upon by the poison, afterwards shreds of mucous membrane and blood-clots. There are also present great anxiety and depression, a weak, rapid pulse, slow and shallow respiration, cold skin, covered with a cold sweat, intense burning heat at the epigastrium, thirst with burning in the fauces, and gullet, and an exhaustive purging; the features are more or less retracted or sunken; these symptoms terminating in collapse and death, or slow convalescence and recovery with a crippled stomach.

A diagnosis of the character of the poison swallowed is often afforded by the stain of the lips, face and mucous membrane, to wit: Sulphuric acid, blackish eschar; nitric acid, yellowish eschar; caustic potash, spreading widely and softening the tissues; corrosive sublimate, whitish or glazed; carbolic acid, white and corrugated.

Prognosis.—Very grave. Many perish from shock, and the destruction of the mucous membrane, which prevents nourishing. Early treatment when no perforation of the walls of the stomach has occurred and recovery is possible, the organ being ever after much weakened.

Treatment.—Drug treatment symptomatic. Exclusive Bovinine diet, small doses in lime water and peptonized milk, gradually increased as the stomach will stand it until the standard quantity is obtained.

In acute inflammatory conditions of the stomach where Bovinine is used from the onset on through the stage of convalescence, it is rarely that there are any severe complications.

CHRONIC GASTRIC CATARRH.

Synonyms.—Chronic gastritis; chronic dyspepsia; drunkard's dyspepsia.

Definition.—A chronic catarrhal inflammation of the stomach, with thickening of the coats and atrophy of the gastric glands; characterized by tenderness over the epigastrium, impaired appetite, painful and imperfect digestion, thirst, and great depression of spirits, or melancholy.

CAUSES.—Repeated attacks of acute gastric catarrh; habitual use of spirituous liquors; malaria; disease of the heart, lungs, pleura or liver, producing chronic congestion of the stomachic vessels; cancerous or other degenerative diseases of the stomach.

PATHOLOGICAL ANATOMY.—The mucous membrane is of a brownish or slate color, elevated into ridges from hypertrophy, the result of constant congestion; the peptic glands first increase in size, then undergo granular change, atrophy of their cells resulting. The mucous membrane is covered with a thick, alkaline, tenacious mucous. These changes may affect the entire organ or be limited in extent.

SYMPTOMS.—Loss of appetite, disagreeable feeling of gnawing and at times fullness in the stomach, tenderness at the epigastrium, but slightly influenced by eating, prominence of the epigastrium from distention by decomposing gases, occasional nausea and vomiting, the latter more common in drunkards, occurring on arising, termed morning vomiting; and consisting of glairy mucous, raised after great retching; constant thirst, water and at times stimulus being craved; often great burning at the pit of the stomach, the result of acidity; bowels constipated, urine high-colored.

A feeling of mental depression and sleeplessness, with occasional attacks of vertigo, add to the misery of the patient Follicular pharyngitis of an aggravated type adds to the general distress of the patient. The imperfect digestion causes more or less loss of flesh, the fat disappearing, the muscles relaxed and the skin dry.

PROGNOSIS.—Favorable as to life, but not as to complete recovery, the atrophied glands more or less hindering digestion and assimilation.

TREATMENT.—Drug treatment symptomatic. Bovinine should be given in teaspoonful doses in lime water and peptonized milk every two hours. As the condition subsides, it should be gradually increased until a wineglassful every three hours is reached.

GASTRIC ULCER.

SYNONYMS.—Chronic gastric ulcer; perforating ulcer.

DEFINITION.—A solution of continuity, involving the mucous membrane and one or more layers of which the walls of the stomach are composed; characterized by pain, disorders of digestion and vomiting of blood.

CAUSES.—Anæmia, or its sequelæ. Most common in young anæmic women.

PATHOLOGICAL ANATOMY.—In the majority of cases the ulcer is solitary, the posterior wall, near the pylorus, is the most common site.

In a typical case there is a circular hole, with sharp borders in the serous coat of the stomach; the loss of substance is greater in the mucous membrane than in the muscular coat, and greater in this than in the serous coat, so that the ulcer looks like a shallow funnel, the apex at the outer wall, the base at the inner wall of the stomach; it is first round, growing, becomes elliptical, bulging at portions, becoming irregular; size, from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter. When the ulcer heals before all the coats are perforated, a distinct cicatrix marks the location. During its progress nutrient vessels are eroded, causing profuse hemorrhage. Chronic gastric catarrh complicates the majority of cases.

SYMPTOMS.—More or less prominent symptoms of indigestion. Pain constant at the "pit of the stomach," increased by taking food, especially of an irritant kind, the pain often felt in the back, of a burning, gnawing character. Tenderness at one or more points, extending from the front to the back. Vomiting is almost as constant as pain, coming on soon after eating if the ulcer is at the cardiac orifice, an hour or so after it is at or near the pylorus. Rejected matter may be undigested or partly digested food, or simply acrid mucus. Vomiting of blood in large quantities and arterial in color is almost diagnostic of gastric ulcer; the blood may be dark in color if it has remained in the stomach some time before being rejected.

Severe and frequent attacks of gastralgia may add to the suffering of the patient. The general condition of the patient is not significant, some being greatly debilitated, while in others the nutrition is but little deranged.

DURATION.—The ulcer is slow in forming, and runs a very chronic course, an average duration being, perhaps, a year. Cases are recorded in which the disease has suddenly developed and terminated by perforation, peritonitis, and death within two weeks, but such are rare.

DIAGNOSIS.—Duodenal ulcer presents symptoms so akin to those of gastric ulcer that a differential diagnosis is impossible.

Chronic gastritis is often confounded with gastric ulcer; the distinctive points are, absence of vomiting of blood, no localized constant pain, aggravated by food, and no tenderness in the back; while the symptoms of indigestion are marked and persistent, with, as a rule, a history of spirit drinking, and the age of the patient—middle life; ulcer in the young.

The points of distinction between gastric cancer and gastralgia will be pointed out when considering those affections.

PROGNOSIS.—Not very unfavorable. Recoveries are frequent. The dangers are perforation, peritonitis or fatal hemorrhage.

TREATMENT.—Drug treatment symptomatic. In this condition nothing can compare with Bovinine as a remedy par excellent. It will in the majority of cases, through it healing and nutritive properties bring about a healthy reparative process. When the ulcer is healed, it invariably does so without forming a cicatrix. The quantity and frequency of Bovinine must be governed largely in the handling of this condition according to the case. Small doses oft repeated meet with better results than large ones. While it is impossible to lay down absolutely a rule, it has been found that all cases did well on from ten to thirty drops every half hour to every hour in Kumyss or peptonized milk. Persistence is necessary in the treatment of this condition, as the process of healing is of necessity slow.

GASTRIC CANCER.

SYNONYMS.—Cancer of the stomach; gastric carcinoma.

DEFINITION.—A peculiar malignant growth, occurring for most part of the pyloric extremity of the stomach, making constant progress, destroying the gastric tissues and infecting the lymphatic glands; characterized by disorders of

digestion, pain, vomiting, marked anæmia, and terminating in all cases by the death of the patient.

Cause.—Hereditary. Develops after forty years, for the most part.

Pathological Anatomy.—Cancer of the stomach is the most common form of cancer. It is, as a rule, a primary cancer. The variety is most commonly the scirrhus, next in frequency, medullary, the least frequent, colloid. As regards the location, eighty per cent. occur at the pylorus.

It originates usually in the tubules, rapidly infiltrating the remaining tissues, thickening everywhere as it progresses, and either remains a hard nodulated mass or undergoes ulceration. The hard nodulated growth at the pylorus constricts the orifice, resulting in dilatation of the stomach. The lymphatic glands adjacent to the stomach are infiltrated, secondary cancers resulting. Ulceration into an artery causes hemorrhage into the peritoneum, resulting in local peritonitis.

Complications.—Fatty heart; thrombosis; tubercolosis.

Symptoms.—The development of gastric cancer is insidious with indigestion, progressive in character, associated with marked acidity, flatulency and a fetid breath.

The majority of cases have vomiting immediately after eating, if at the cardiac orifice, and some hours after it at the pylorus; if much dilatation of the stomach develop omiting occurs some days after eating. The rejected matter is food in various stages of digestion, associated trequently with black grumous masses of altered blood. Pain, marked and constant, dull, heavy, increased by pressure, seldom lancinating. Marked anæmia, emaciation, are present, the surface having an earthly or fawn color. Œdema of the ankles is an early diagnostic symptom in carcinoma of the stomach, often occuring as early as the third month. A tumor is found in three-fourths of the cases, occupying the epigastric region, not moving with inspiration.

The duration of the disease is about one year, the patient dying from exhaustion, peritonitis, or hemorrhage.

Diagnosis.—The continous presence of free hydrochloric acid in the stomach is a diagnostic sign of great value in excluding the probable existence of gastric cancer. Chronic gastric cartarrh differs from gastric cancer in the

absence of a tumor, bloody vomit, characteristic pain, peculiar color of the surface, dropsy, and the rapid emaciation. Gastric ulcer differs in the character of the pain, age of the patient, large amount of bloody vomit, absence of a tumor, and progressive emaciation. Still the diagnosis is often difficult.

Abdominal tumors may raise the question of a gastric cancerous tumor; the points of distinction are the characteristic symptoms of gastric cancer, and that abdominal tumors, especially of the liver and spleen, the ones most apt to cause error in diagnosis, are influenced by inspiration, while tumors of the stomach are not so influenced.

When a scirrhus of the pylorus lies upon the aorta, a pulsation may be communicated to it, raising the question of taneurism of the abdominal aorta, but the expansile pulsaion of aneurism (Corrigan's sign) is wanting, as are the other smptoms of the affection, and if the patient is made to rest upon his hands and feet the stomachic tumor falls away from the aorta and the pulsation ceases.

Prognosis.—Unfavorable. Internal medication offers no hope, the patient usually succumbing from starvation. Gastric carcinoma occurring under thirty years of age is rapidly fatal, not conforming to the usual symptoms as seen later in life; the characteristic cachexia is commonly absent, and hæmatemesis is rare.

Treatment.—Drug treatment symptomatic. While no direct cures in the treatment of this condition have been definitely proven (outside of extirpation), nevertheless marked improvement has resulted in all cases where Bovinine was employed. Perhaps if it were administered at the very onset a complete result might be obtained. However, there is nothing so thoroughly indicated as Bovinine. It will at least prolong life and lessen the suffering. It should be given in small doses, from ten to thirty drops, every hour to two hours in lime water and peptonized milk.

GASTRIC DILATATION.

Synonyms.—Pyloric obstruction; pyloric stenosis.

Definition.—An abnormal increase of the cavitity of the stomach, with the walls either hypertrophied, or decreased in thickness; characterized by pronounced indigestion, vomiting of partly digested and partly decomposed food at

intervals of a day or two, and noisy moving of flatus in the abdomen (borborygmus).

Causes.—Most common cause a stricture of the pylorus, the result of cancer; pressure of tumor against the pylorus, preventing exit of stomachic contents. Loss of muscular tone, occurring in anæmia. Prof. Bartholow cites cases resulting in excessive beer drinkers, who drank thirty to forty glasses of beer habitually every day.

Pathological Anatomy.—When obstruction exists at the pylorus, the whole organ is dilated, with hypertrophy of the muscular layer of the stomach. In dilatation without pyloric obstruction, the muscular layer is thinner than normal, pale in color and signs of fatty degeneration; the mucous membrane is also pale, thin, and without rugæ.

Symptoms.—Those of the disease producing the obstruction plus those of obstinate, chronic gastric cartarrh, with the characteristic vomiting; the cavity having a greatly increased capacity, large accumulations take place, which are rejected every day or two, partly digested and partly decomposed. Regurgitation of partly digested aliment, acrid, acid and offensive, is very common. Bowels constipated, the stools hard and dry.

Physical signs of gastric dilatation are: On inspection, abnormal prominence of the whole epigastric region, with a tumor in the pyloric region, which seems to be connected with the stomach; percussion, if empty, tympanitic note extending to or below the umbilicus, having a metallic quality; if the stomach be filled, high-pitched flat note; ausculation, splashing and rumbling sound, the succussion sound being distinct if the body be shaken.

Diagnosis.—Copious vomiting of food partly digested, once in twenty-four hours, or less often, epigastric distress and pain resulting from acid eructations.

Penzoldt's motification of Piorry's method of determining gastric dilatation is to withdraw the contents of the stomach by means of the œsophageal tube, and then refilling the stomach with food. By noting the lower limit of percussion, dullness thus produced, the lower border of the stomach can be accurately determined.

Treatment.—A patient suffering with this condition, if kept on a Bovinine diet from three to six months, will, in the majority of cases, if not cured, show great improve-

ment. The Bovinine requiring little or no digestion, and not distending the stomach, and at the same time giving a complete result of necessity, will more readily bring about a contraction than where a general diet is allowed. Bovinine can and will perfectly nourish the entire body. It should be given from a teaspoonful to a wineglassful every hour to four hours, preferably in peptonized milk.

GASTRIC HEMORRHAGE.

SYNONYMS.—Hæmatemesis; gastrorrhagia.

DEFINITION.—Gastric hemorrhage is not, strictly speaking, a disease, but a symptom; still, vomiting of blood occurs under such a variety of conditions that a separate consideration is desirable.

CAUSES.—Ulcer of the stomach; cancer of the stomach; cirrhosis of the liver, scurvy, purpura; hæmophilia; hemorrhagic malarial fever; congestion of the liver or spleen; cirrhosis of the liver; vicarious at menstrual period; yellow fever; toxic gastritis.

SYMPTOMS.—Added to the symptoms of the cause of the hemorrhage, are a feeling of faintness and sinking at the pit of the stomach, followed by the ejection of blood of a black, grumous, or coffee-ground appearance. Rarely, and then generally in gastric ulcer, the ejected blood may have a bright red appearance, the gastric juice not having had time to act upon it. If the amount of blood escaping into the stomach is large, blood will be voided by stool.

DIAGNOSIS.—Hemorrhage from the lungs may be confounded with gastric hemorrhage. In the former, the blood is red, is coughed up, not vomited, and is associated with a history of pulmonary disease. The chief point of distinction between pulmonary hemorrhage and the vomiting of red blood is that in the former you can discern rales on auscultating the chest, and they are absent in the latter. In hemorrhage from the stomach there is almost invariably food mixed with the blood.

PROGNOSIS.—Depends entirely upon the cause, the most unfavorable being the result of either gastric ulcer, cancer, hepatic cirrhosis, or næmophilia.

TREATMENT.—Drug treatment symptomatic. Bovinine is the food par excellent, no matter what the cause of the hemorrhage. It should be given in from ten drops every

hour to a wineglassful every four hours, according to the age and condition of the patient. The quantity should always be governed by the cause of the hemorrhage.

GASTRALGIA.

SYNONYMS.—Cardialgia; gastrodynia; stomachic colic; spasm of stomach of stomach; neuralgia of the stomach.

DEFINITION.—A painful condition of the sensory nerves of the stomach, induced by various sources of irritation; characterized by violent paroxysms of gastric pain and spasm; associated with feeble cardiac action and symptoms of collapse.

CAUSES.—The affection belongs to the group of neuralgiæ. The most important factor in its causation is a general nervous depression; other causes are malaria, rheumatic or gouty diathesis, anæmia and certain articles of diet.

SYMPTOMS.—Like most nueroses, gastralgia is distinguished by its paroxysmal character. Romberg thus describes an attack:

"Suddenly, or after a feeling of pressure at the præcordium, there is severe griping pain in the stomach, usually extending to the back, with a feeling of faintness, a shrunken countenance, cold hands and feet, and an intermittent pulse. The pain becomes so excessive that the patient cries out. The epigastrium is either puffed out, like a ball, or retracted, with tension of the abdominal walls. There is often pulsation of the epigastrium. External pressure is well borne, and not unfrequently the patient presses the pit of the stomach against some firm substance, or compresses it with his hands. Sympathetic pains often occur in the thorax, under the sternum, and in the œsophageal branches of the pneumogastric, while they are rare in the exterior of the body.

"The attack lasts from a few minutes to half an hour or longer; then the pain gradually subsides, leaving the patient much exhausted; or else it ceases suddenly with eructation of gas or watery fluid, or with vomiting and with a gentle, soft perspiration, or with the passage of reddish urine."

Besides such severe attacks, we often see painful sensations in the epigastrium, of various degrees of intensity, with passing faintness or sinking at the "pit of the stomach."

DIAGNOSIS.—From myalgia of the abdominal muscles, by the pain of gastralgia being more acute and lancinating, accompanied by nausea and vomiting and the absence of tenderness on pressure.

From intercostal neuralgia, by the fact that in this affection the pain is in the left hypochondrium, with painful spots along the course of the nerve trunk and at the spine, and absence of nausea and vomiting.

From gastric cancer, by the age, character of the vomited matter, constancy of the pain, the cachexia, emaciation and the tumor.

From gastric ulcer, by the localized pain and its constancy, with tenderness and vomiting of blood, and constant dyspeptic symptoms, which is not the case in gastralgia.

PROGNOSIS.—As to perfect recovery, unfavorable, but not dangerous to life. A chronic affection, in that attacks are prone to return from time to time. The cause has much to influence a radical cure.

TREATMENT.—Drug treatment symptomatic. In this condition rest is most essential, and under a Bovinine diet this undoubtedly can be attained. Bovinine should be given in teaspoonful doses every hour in peptonized milk, gradually increasing it to a wineglassful every four hours.

ATONIC DYSPEPSIA.

SYNONYMS.—Dyspepsia; indigestion; heartburn; pyrosis.

DEFINITION.—A functional derangement of the stomach, with either deficient secretion in the quantity or quality of the gastric juice; characterized by disorders of the functions of digestion and assimilation and the presence of sympathetic nervous symptoms.

CAUSES.—Imperfect mastication; bolting of food; eating large quantities of food; same diet long continued; depressed nervous system, from worry and fatigue; sedentary habits or occupations. It is often inherited.

SYMPTOMS.—Perverted appetite, capricious or lost; difficult digestion, a feeling of weight or fullness in the epigastrium; acidity from the decomposition of albuminoids; heartburn, flatulency, regurgitation, or vomiting of portions of partly digested food or acrid fluid—water-brash or pyrosis. Pain or soreness at the "pit of stomach" during

digestion. Tongue either clean or broad, flabby and pale, showing marks of the teeth. Bowels constipated; urine generally scanty and high-colored, with excess of urates or oxalates, or, in persons of nervous type, it is pale, of low specific gravity, and contains phosphates. Drowsiness after meals, with wakefulness at night, defective memory, headache and absent mental vigor, with flashes of heat, followed by more or less perspiration. Palpitation of the heart with irregularity in rhythm.

Varieties of Dyspepsia. I. Nervous dyspepsia, atonic form, seen in active business or busy professional men, especially those of thin, spare build, of nervous temperament, who eat meals rapidly and hurry off to their business. These cases present all the marked nervous phenomena. II. Flatulent dyspepsia, seen in hysterical individuals, and showing immense development of gas throughout abdomen and nervous symptoms. III. Acid dyspepsia, water-brash. Seen when the diet is coarse. Acidity of the gastro-intestinal canal and of the urine. IV. Irritative dyspepsia. Vomiting a prominent symptom. In these cases the tongue is small, red and pointed.

PROGNOSIS.—With careful living, dyspepsia, functional in character, is curable. It has been aptly termed "remorse of the stomach."

TREATMENT. — Drug treatment symptomatic. Until marked improvement results, the patient should be kept on a Bovinine diet. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

CHRONIC GASTRIC ULCERATION.

By T. J. BIGGS, M. D., Sound View Hospital.

Too often ulcer of the stomach is not diagnosed until a post-mortem is made. In 5 per cent. of those dying from all causes, ulcers, either cicatrised or open, are found in the stomach; the scars of them being the more common. The female sex is more subject to them than the male; which may, perhaps, be due to the fashionable compression of the waist. It oftenest attacks anæmic or chlorotic individuals, and is not infrequently associated with tuberculosis.

Gastric ulceration results from self-digestion of a part of the stomach wall by the gastric juice. This is prevented

in the normal stomach by the circulation of alkaline blood in the gastric mucous membrane. Its most frequent cause is malnutrition of the stomach, due to altered states of the blood, as in anæmia and chlorosis. The specific symptom is pain, which is fixed, and does not radiate; usually under the ensiform cartilage and between the scapulæ; is increased by pressure, and immediately on taking food; but often occurs in paroxysms independent of these causes, vomiting occurs soon after taking food from irritation, the matter vomited often containing blood-streaked mucus. There is hæmorrhage in 50 per cent. of cases, varying in amount, and generally black, unless the ulcer is very large.

TREATMENT.—The treatment should consist in rest, close attention to diet and secretion, and medicines applied symptomatically from time to time. Absolute rest in bed should be enforced until the symptoms have subsided. The food must be easy of digestion and non-irritating, taken in small quantities and often. If the case is severe, rectal feeding should be adopted until the stomach is able to retain food comfortably. It is needless to remark that Bovinine is the nourishment tacitly indicated in all such cases; using anywhere from ten to thirty drops, according to the case, every one or two hours, in milk that has been boiled, water, or cold bouillon. Thus the stomach gets almost absolute rest, even while receiving this nourishment; and so the most perfect nutrition of the system, including the diseased part of the stomach itself, is kept up without interruption, without irritation, and without injurious functional labor.

CHRONIC GASTRIC ULCERATION.

By Dr. T. J. BIGGS, Sound View Hospital.

Miss E—— R——, of Newark, N. J.; age 46; admitted September 10th, 1897; gastric ulcer; all symptoms of a well-defined chronic case; dyspepsia, flatulent; fixed pain under the ensiform cartilage, extending back between the scapulæ, much increased by pressure, and also greatly aggravated on taking food. There were also paroxysms of pain independently of food or pressure. After eating, she vomited matter containing blood-streaked mucus. She had suffered four hæmorrhages of the stomach. The case

was of six months' standing, and had received many of the usual forms of treatment.

The patient's stomach was gently washed out with a 20 per cent. solution of boracic acid. Absolute rest in bed was insisted on. Twenty drops of Bovinine was administered every hour in a tablespoonful of lime water. Her functions also were regulated, and bowels washed out once in forty-eight hours with an enema of glycerine and soap suds.

At the end of the first forty-eight hours, the patient said she felt greatly relieved of pain, and had not vomited in six hours.

By the 14th, patient showed decided improvement: vomiting had ceased entirely; there had been no hæmorrhage; and it had been remarkable to note the rapidity with which the pain was removed—a phenomenon always attendant on the application of Bovinine to painful ulcerations, but which has not yet been decisively accounted for by the theories that have been suggested.

On September 21st, the progressive improvement permitted the patient to take boiled milk, buttermilk, and barley gruel and could soon be allowed a certain amount of daily exercise in the open air. She now suffered no pain whatever, further than some soreness to pressure, and the dystic symptoms had almost entirely disappeared.

November 18th, a thorough and careful examination, physicial and microscopical, revealed the ulcer entirely healed and health perfectly restored.

GASTRIC ULCER.

In the American Gynæcological and Obstetrical Journal, Dr. L. R. McCormick, of Crothersville, Ind., writes of his treatment in a case of gastric ulcer:

The patient, a young lady, came to me some time ago, complaining that for three or four weeks she had been unable to retain any food whatever upon her stomach, even water was promptly rejected. She was naturally in an extremely emaciated condition, and complained, moreover, that the vomited matter frequently contained blood. She was subject to severe epigastric pain, was extremely nervous, and afflicted with headache, insomnia, and constipation.

I administered various digestive ferments of good repute, but they were promptly vomited, as were all other remedies, such as bismuth subnitrate, oxalate of crebium, etc. I realized the gravity of the case, and knowing of no medicine, or rather, trusting none, for her relief, I turned as a last resort to Bovinine. Pending its arrival from New York, I gave her stomach a complete rest from all food and medicine. The vomiting continued at intervals, yet was not so severe as before. When the Bovinine arrived I gave her at once teaspoonful doses in milk; it was retained, and from the first dose there was a steady improvement in her general condition. She is now taking it in tablespoonful doses, and the stomach is not only tolerant of solid food, but it is evidently digesting it. Her sleep is better, the nervous irritability is allayed, her bowels are regular, and for the last week or ten days she has been at her store working as usual.

GASTRIC ULCER.

By Dr. T. J. Biggs, Sound View Hospital.

Fred B——, South Norwalk, Conn.; age 40; January 2d, 1899. This case was of six months' standing, but had received no benefits from many treatments employed. He was now unable to retain any food. I gave rectal injections of Bovinine and milk every three hours; per mouth, Bovinine, twenty drops in lime water every hour. The first dose was rejected, the second and third were retained, the fourth rejected; after this the vomiting entirely ceased. When first seen, the patient was so weak that he could not sit up in bed; but by January 7th he had improved so that he was able to sit up in bed for a little while every day. January 23d, the gastralgia and hæmorrhages had entirely ceased, and the pain in pit of stomach and back was much lessened. He now asked to be allowed to try general food. This was permitted, and he retained it well. February 1st, was allowed to leave his bed, and remained up most of the day. February 6th, he went out for a walk, much refreshed and stronger. February 14, he was discharged.

CASE OF CHRONIC PYROSIS.

By Dr. T. J. Biggs, Sound View Hospital.

Ella Sterrett, Long Island City; age 30; June 10th, 1898; chronic pyrosis; under treatment for twenty-four years; almost everything known to the profession having been done for her without results, from the beginning of the complaint, in her sixth year. But at the age of twenty-nine it took on a violent form; she became unable to retain anything on her stomach; began to lose flesh rapidly; weight reduced within the last year from 160 to 83 pounds; bowels could sometimes not move for a week, in spite of cathartics and hot water injections.

The patient was now put to bed, and first the stomach was washed out with a weak Thiersch solution, and ten drops of Bovinine in iced grape juice were given every hour, extending through the night. After twenty-four hours, she said her stomach felt greatly relieved. The Bovinine was then increased to a teaspoonful in a wine-glassful of milk every two hours; the first two doses being thrown off, but the third and subsequent ones were retained, without discomfort.

This was continued to the 16th, with steady improvement, when I deemed it wise to suggest an operation for relief of the constipation, as the bowels refused to respond to any but the most drastic cathartics, and these being weakening and irritating, it seemed not wise to continue them. On the 16th, under chloroform, the rectum and anus were thoroughly stretched, and the bowels washed high up with soap suds and water. This was followed by a most copious evacuation. She reacted nicely from the anæsthetic, and since then the boweis moved regularly once a day. On the 18th, the Bovinine was increased to a tablespoonful in milk every three hours. After this she was allowed, in addition, some easily digested food. No further attacks of the gastric colic.

July 7th, 1898, patient was discharged, weight of 124 pounds—a most remarkable and unparalleled gain of 41 pounds in less than a month.

CASE OF PYROSIS, Etc.

By S. P. Miller, M. D., Rockwood, Ill.

Mrs. H——, who had been very feeble from long suffering with prolapsus, which, after recovery, left her so weak

and wasted in muscle that she could not step out of her room for weeks at a time. She had used emulsion of cod liver oil until she became so troubled with pyrosis that the most delicate medicine or nutriments could not be retained by the stomach. I at first had her on various tonics—elix. iron, quinine, strychnine, etc.—but all without avail. I then put her on Bovinine, and I could note a change within thirty hours. Yesterday, after thirty-three days, dating from the beginning at December 14th, she walk three blocks to my office—a distance greater than all that she had walked in four years past! The improvement in her since the 14th day of December seems to the laity a miracle. But other Bovinine cases are nearly or quite as remarkable, the results always exceeding expectation.

DISEASES OF THE INTESTINAL CANAL.

INTESTINAL INDIGESTION.

SYNONYM.—Intestinal dyspepsia.

DEFINITION.—A derangement in the functions of intestinal digestion, resulting in the more or less complete decomposition of the chyme, from defects in the pancreatic, biliary or intestinal secretions, or from deficient peristalsis, one or more, singly or combined; characterized by abdominal pain, distention, tympanites some hours after meals and nervous perturbation, anæmia and emaciation.

CAUSES.—Imperfect diet, over eating; anæmia; deficient exercise, worry; immoderate use of tobacco; diseases of the intestinal tract, liver of pancreas; malaria. Frequently inherited.

SYMPTOMS.—Intestinal indigestion may be either acute or chronic, the latter the more common.

Acute variety, the result of an irritant in the duedenum; rapidly developed in pain, flatulency, borborygmi, slight feverishness; coated tongue, loss of appetite, headache, pains in the limbs, usually terminating in a mild attack of diarrhœa.

If the attack developes rapidly, the sudden formation of gases results in a paroxysm of colic.

Severe attacks are associated with disordered hepatic function, viz: Light colored stools, slight jaundice and high-colored urine.

Chronic variety, resulting from a greater or less decomposition of the partly altered food from the stomach. Pain, varying in character, occurring from two to four or six hours after meals, with slight tenderness and some fullness in the right hypochondrium, epigastrium or the umbilical region. Tympanites and borborygmi are marked, the result of gaseous accumulations which have resulted from the decomposition of the intestinal contents. Dyspnœa, the result of pressure against the diaphragm, is of frequent occurrence. Marked nervous phenomena develope, the result of the anæmia from deficient assimilation and from the depressing influence on the nervous system of the absorption of the "gases of decomposition;" depression of spirits, hypochondriasis, sleeplessness, disturbing dreams, vertigo, buzzing in the ears, muscæ volitantes, deficient mental application, cardiac irritability, numbness and tingling in the extremities, anomalous pains throughout the body, and in marked cases, attacks of fainting, epileptiform and cataleptic attacks.

The skin is harsh and dry, the bowels are sluggish or constipated, the urine is high colored, of increased density, decidedly acid, and on cooling deposits lithates, uric acid and oxalate of lime crystals. Functional derangement of the liver follows after a time, adding to the general distress.

Anæmia and emaciation result if the attack be protracted.

Diagnosis.—With our present knowledge it is usually impossible to designate forms of intestinal indigestion due to defects in the quantity or quality of either the pancreatic, biliary or intestinal secretions.

Acute intestinal indigestion differs from gastric indigestion in the time of development of the various phenomena, in the latter the symptoms appearing almost immediately after meals, while in the former not appearing until two, four or six hours after. Chronic intestinal indigestion may mislead the physician if the various phenomena are of a marked character, and a history of the case is not developed.

Prognosis.—Favorable if proper and early treatment is inaugurated, unless the result of an organic lesion.

Treatment.—Drug treatment symptomatic. Exclusive Bovinine diet for at least ten days, in doses from a teaspoonful to a wineglassful from every hour to every four hours, according to the age and condition of the patient.

INTESTINAL COLIC.

SYNONYMS.—Enteralgia; tormina; gripes.

DEFINITION.—A spasmodic contraction of the muscular layer of the intestinal tube; characterized by acute paroxysmal pain near the umbilicus, relieved by pressure, and associated with feeble cardiac action.

CAUSES.—Constipation; presence of indigestible food; collections of flatus; an abnormal amount of bile discharged into the intestines; lead poisoning; syphilis; chronic malaria; rheumatism; hysteria.

SYMPTOMS.—Romberg thus describes a paroxysm: "There are attacks of pain, spreading from the navel over the abdomen, alternating with intervals of ease. The pain is tearing, cutting, pressing, most frequently twitching, pinching, accompanied by peculiar bearing-down pains. The patient is restless, and seeks relief in changing his position and in compressing the abdomen; his surface may be cold and his features pinched. The pulse is small and hard. The abdomen is tense, whether puffed up or drawn inward. There are often nausea and vomiting, and desire for stool. There is usually constipation, but sometimes the bowels are regular or even too loose. Duration from a few minutes to several hours, relaxing at intervals. The attack ceases suddenly, with a feeling of greatest relief, although some soreness remains for a few days.

Lead colic is always preceded by symptoms of lead poisoning, to wit: Slate-colored skin, dark gums, showing blue line, heavy breath, with sweetish metallic taste, obstinate constipation, impaired appetite, slow pulse and contracted abdominal walls.

DIAGNOSIS.—Gastralgia differs from colic, in the pain being in the epigastric region and associated with disorders of digestion.

In hepatic colic, or the passage of the gall stones, the pain is in the hepatic region, attended with soreness over the gall bladder, and retching and vomiting, followed by jaundice and the presence of bile in the urine.

In nephritic colic the pain follows the course of one or both ureters, shooting to loins and thigh, with retraction of the testicle of the affected side, strangury and bloody urine.

In uterine colic the pain is in the pulvis, and associated with menstrual disorders, in fact, dysmenorrhœa.

In ovarian colic, or neuralgia, pain on pressure over the ovaries, with hysterical phenomena.

Inflammatory disorders of the abdomen differ from colic by the presence of fever and tenderness on pressure.

PROGNOSIS.—Most favorable. Death is the rarest termination possible.

TREATMENT.—Drug treatment symptomatic. Following an attack, a Bovinine diet will prevent a recurrence. It should be continued for ten days in doses from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient.

CONSTIPATION.

SYNONYMS.—Intestinal torpor; costiveness.

DEFINITION.—A functional inactivity of the intestinal canal, either due to atony of the muscular coat, causing lessened peristalsis, or to a deficiency of intestinal and biliary secretion; characterized by a change in the character, frequency and quantity of the stools.

CAUSES.—Dyspepsia; character of the food; habits of the patient; diseases of the stomach and liver; malaria; lead poisoning; syphilis.

SYMPTOMS.—In the normal condition the majority of persons have one stool each day, although it is not to be considered abnormal if more or less than that number occur.

The bowels are moved every three or four days, with great straining and distress, the face often flushed, the cerebral vessels full.

Or in other cases the bowels may be relieved once a day, but the stool is small and hard, causing great pain.

Another group of cases have frequent stools during the day, small and non-formed, due to retained hardened fæces acting as an irritant upon the rectum.

The change in the character of the stools is soon followed by symptoms of dyspepsia, headache, mental torpor, vertigo, palpitation on exertion, and in many cases with great distention of the abdomen.

PROGNOSIS.—Death never results directly from functional constipation.

TREATMENT.—In this condition, as a food Bovinine is incomparable. It should be given in doses from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient, and only light general diet allowed for at least ten days.

DIARRHŒA.

SYNONYMS.—Enterorrhœa; alvine flux; purging.

DEFINITION.—Frequent loose alvine evacuations, without tenesmus; due to functional or organic derangement of the small intestines, produced by causes acting either locally or constitutionally.

CAUSES.—Those acting locally, such as indigestion, indigestible food, impure food and water, irritating matters or secretions poured into the bowels, or entozoa, cause the flux by a direct irritation of the mucous surface.

Attacks of diarrhœa due to constitutional derangement may be secondary to such diseases as tuberculosis, pyæmia, albuminuria, typhoid fever, or disturbances of the functions of other organs, giving rise to vicarious fluxes.

Atmospheric changes as well as a sudden mental shock will predispose to an attack of diarrhœa.

FORMS.—Acute and chronic.

SYMPTOMS.—Acute diarrhœa presents itself in several varieties, the result of its particular cause, to wit:

Feculent diarrhœa. A few hours after meals the patient feels colicky pains and flatulency, with a desire for stool. There is often nausea, coated tongue, but seldom vomiting. The pain is generally relieved by the purging which ensues. The stools have a feculent character, are of a brown fluid, containing fæces, often offensive, the color becoming lighter after four or five evacuations. Constitutional symptoms are wanting.

This form is the result of over-eating, eating too rapidly or indigestion of different forms, or worms in the intestinal canal, and patients generally recover in a day or two.

Lienteric diarrhœa. In this form there is, with the frequency of evacuations, a want of assimilation of food, which passes through the intestines more or less unaltered. The stools are frequent, mucous or serous, more or less covered with bile, mixed with undigested food. In this form the patients emaciate rapidly, owing to the deficient assimilation, the digested portions of the food being hur-

ried on by the increases peristalsis of the irritated bowel. It is usually subacute in its course.

Bilious diarrhœa. The stools are frequent, green or yellow, with scalding sensations at the anus and griping pains in the abdomen. Excessive biliary secretion is the irritating cause.

Any of the above forms may pass into chronic diarrhœa by exciting permanent diseases of the intestines. Diarrhœa due to constitutional causes will be mentioned when speaking of those conditions.

Chronic diarrhœa results from repeated attacks of the acute form, or is the result of some cachexia. The symptoms, as far as the stools are concerned, are much the same as the acute disease, except they are paler, whence it has been termed white flux; in addition, dyspeptic symptoms, aphthous condition of the mouth and tongue, flatulency, colic, emaciation and anæmia. The appetite is at times capricious, again impaired.

PROGNOSIS.—Favorable in feculent and bilious forms; unfavorable in lienteric and chronic forms when emaciation begins. Diarrhœa occurring as a symptom, the prognosis is controlled by the original disease.

TREATMENT. — Drug treatment symptomatic. In any form of diarrhœa, Bovinine is indicated in small doses, often repeated, and has its effect by virtue of the fact that it requires little or no digestion, giving the stomach and bowels complete rest, and at the same time thoroughly nourishing the patient.

CATARRHAL ENTERITIS.

SYNONYMS. —Ileo-colitis; acute diarrhœa; inflammation of the bowels.

DEFINITION.—A catarrhal inflammation of the mucous membrane of the small intestines; characterized by fever, pain, tenderness and looseness of the bowels. When the catarrh is limited to the duodenum it is termed duodenitis.

PATHOLOGICAL ANATOMY.—There first ensues hyperæmia of the mucous membrane and intestinal glands, manifested by redness, swelling and œdema; this is followed by increased secretion and an overgrowth and desquamation of the epithelium, together with a copious generation of young cells. As a result of the hyperæmia, rupture of the capillaries and extravasation of blood often occur.

The swollen glands show a strong tendency to ulcerate. This catarrhal process may involve the whole tube or be limited to portions of it.

CAUSES.—Improper and indigestible food; summer temperature and exposure to cold and wet while perspiring.

SYMPTOMS.—Begins with languor, followed by chilliness and fever, the temperature ranging at 102°–103°; this is followed by pain, colicky and paroxysmal in character, situated above the umbilicus, localized tenderness and loose evacuations. Nausea and vomiting often occur. The stools contain but little fecal matter, are yellow or greenish-yellow in color, mixed with undigested food; if the stools are numerous, they become whitish and watery, the so-called "rice-water" discharges. The appetite is impaired, and this, with the want of assimilation and great waste, soon produce extreme weakness and emaciation, which is always more marked in children.

DURATION.—In mild cases, four or five days; severe cases continue more or less marked for a week or two.

DIAGNOSIS.—From colic, by the absence of tenderness and fever, and presence of constipation and its paroxysmal character.

From typhoid fever, by the absence of prodromes, characteristic temperature record and eruption.

For points of distinction from dysentery or peritonitis, see those affections.

PROGNOSIS.—Favorable, if early and proper treatment is observed.

TREATMENT.—Drug treatment symptomatic. This condition yields rapidly to the Bovinine treatment. The Bovinine sustains the patient and gives rest to the stomach and bowels, and brings about by its local effect on the mucous membrane a rapid cessation of the pathological lesion. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

MEMBRANOUS ENTERITIS.

[The following case is an instance of a dangerous disease which often, and in bad cases like this usually, runs to a fatal termination, in spite of the best efforts of treatment heretofore known.]

By Dr. C——, New York.

Ann Boyle; age 47; January 8th, 1897; suffering from a chronic membranous enteritis, or catarrhal inflammation of the bowels, of four years' standing; had been treated at various institutions and by a number of private physicians, without real benefit. The attacks were periodical, recurring weekly, with very severe and exhausting colic, followed by diarrhœa, with tenesmus, mucus, blood, shreds of membrane and membrane in cylindrical casts. She was very anæmic, weak, and emaciated, having lost 30 pounds in weight, and was subject to severe frontal headache.

She was put upon Bovinine at once, and by February 7th the headache had entirely disappeared, digestion was restored, the attacks were no longer severe or frequent—one in two or three weeks at most. The blood on examination also showed marked improvement, the cells and hæmaglobin, which had been far below standard, now approaching normal, and weight increasing. The improvement in all symptoms continued steadily, under the same treatment, until on April 1st, her weight had gained ten and one-half pounds, and blood was about the standard of 5,000,000 red corpuscles to the cu. m. m., no more attacks of the complaint, and in short the cure may be considered complete.

GASTRIC CATARRH AND MEMBRANOUS ENTERITIS OF TEN YEARS STANDING.

By Dr. T. J. Biggs, Sound View Hospital.

George Reynolds, Stamford, Conn.; age 56; October 8th; loss of appetite; gnawing and fulness in the stomach; tenderness and prominence of the epigastrium; morning vomiting of glairy mucus, with great retching; constant thirst; great burning at the pit of the stomach; bowels constipated; urine highly colored; mental depression; sleeplessness; attacks of vertigo; follicular pharyngitis of an aggravated type; much loss of flesh; muscles relaxed and the skin dry, and, in spite of all treatments, had been growing steadily worse for ten years.

TREATMENT.—After regulating the bowels and secretions, Bovinine in milk every hour, and to allay the thirst, half a teaspoonful of Bovinine in ice water as necessary. By October 9th the vomiting had ceased, the pain in the abdomen had disappeared, and he had gained 3½ pounds in weight. November 12th, patient was well and hungry, all symptoms had disappeared, and he was now allowed a light general diet; to the present time having taking nothing but Bovinine and milk; had gained 12¾ pounds in flesh, and said he was feeling splendidly.

CATARRHAL ENTERITIS.

By Dr. T. J. BIGGS, Sound View Hospital.

Felix Max, Larchmont, N. Y.; age 37; August 2nd, 1898; nearly two years under treatment for this condition, but with no relief. I determined to allow him nothing but Bovinine and milk internally, with the object of giving the digestive apparatus as perfect rest as possible, and throwing the least possible of fæcal matter over the inflamed surface. Rectal injections of Bovinine were also given three times a day. August 29th, a discharge from the rectum of one and a-half years' standing had entirely ceased, together with the chronic pain and soreness. September 5th, patient was discharged well.

CROUPOUS ENTERITIS.

SYNONYM.—Membranous enteritis.

DEFINITION.—A croupous inflammation of the mucous membrane of the small intestines; characterized by tenderness, paroxysmal pain, moderate fever, and the formation and discharge of membranous shreds or casts.

CAUSES.—A disease of adult life. The female sex more liable than the male, and neuralgic, nervous, hysterical or hypochondriacal subjects are more subject to it than other types.

A peculiar state of the nervous system seems necessary to its production.

PATHOLOGICAL ANATOMY.—A subacute inflammation of the small intestines, during which the mucous membrane becomes covered with a white or grayish-white, firmly adherent, membranous deposit, cemented together by a coagulable exudation, and prolonged by rootlets from its under surface into the intestinal follicles.

SYMPTOMS.—Begins by feverishness, feeling of soreness and distention of the abdomen; these are followed by pains of a colicky character, severe and depressing, felt around the umbilicus, continuing for half an hour, an hour or longer, and after a longer or shorter interval occurring again; these phenomena continue for a day or two, when looseness of the bowels, with distressing pains and tenesmus occur, the stools containing mucus, with or without blood, and shreds of membrane or cylindrical casts of the bowel. Great relief is then experienced, although a feeling of rawness or soreness persists for a day or two.

Preceding the local manifestations of the disease are attacks of hysteria, hypochondriasis, neuralgia, nervousness and excitability.

The paroxysms recur at intervals of a week or two, or after several months; as long an interval as three years between attacks is recorded.

DIAGNOSIS.—Peritonitis may be suspected until the characteristic stools occur.

Dysentery is excluded when the shreds and casts of membrane appear.

PROGNOSIS.—Favorable as to life, but one of the most difficult of diseases to eradicate.

TREATMENT.—Drug treatment symptomatic. Bovinine should be given in from five drops to a wineglassful from every hour to every four hours, as indicated, to the exclusion of all other food from ten days to two weeks.

CHOLERA MORBUS.

SYNONYMS.—Sporadic cholera; English cholera; bilious cholera.

DEFINITION.—An acute catarrhal inflammation of the mucous membrane of the stomach and intestines, of sudden onset; characterized by violent abdominal pains, incessant vomiting and purging, cold surface, rapid, feeble pulse, spasmodic contractions of the muscles of the abdomen and extremities, and prostration.

CAUSES.—A disease of the summer and early autumn, climatic influence being an important factor. Irritants of all kinds, unripe fruits and vegetables, and fermentation of food.

Pathological Anatomy.—Cases in which death has occurred within a few hours present no pathological changes.

Generally, however, the gastro-intestinal mucous membrane is congested and denuded of epithelium; the Solitary and Peuyrian glands are swollen and prominent. The blood is thick, and dark in color; the kidneys are enlarged and congested; and in prolonged cases there are appearances of granular changes in the muscular system.

Symptoms.—Onset sudden and violent, and, unfortunately, generally after midnight, with chilliness, intense nausea, vomiting and purging, accompanied with distressing burning or tearing abdominal pains or colic. The vomited matter at first consists of the ordinary contents of the stomach, and the stools of ordinary fæces, but soon the discharges by vomit and stool are liquid, whitish or of a green or yellowish tint; if the attack is severe or protracted, the discharges partake of the "rice-water" character. The patient is rapidly emaciated and reduced in strength, the body shrinks, the surface cold and covered with a clammy sweat, and the pulse feeble. Intense thirst is present, and when drink is given it is at once rejected.

Aggravating the distress of the patient are severe cramps of the muscles, and especially those of the calves, and of the flexors of the thighs, forearms, fingers and toes.

Termination.—Mild cases often terminate favorably without treatment, the patient able to be around in a day or two, although weak.

Severe cases, the vomiting and purging cease after some hours, but the patient remains weak, with an irritable stomach for a week or two.

Grave cases the cholera type, recover from the prostration very gradually; reaction coming on slowly and usually passes into a typhoid condition of some weeks' duration.

Diagnosis.—Asiatic cholera and cholera morbus are easily confounded during an epidemic of the former and there are no positive points of discrimination. Irritant poison, such as tartar emetic, elaterium, or other substances, cause vomiting and purging similar to cholera morbus and are only discriminated from it by the history.

Prognosis.—In the majority of cases favorable. The mortality is about five per cent.

TREATMENT.—Drug treatment symptomatic. During and after an attack of cholera morbus, for at least a week Bovinine in peptonized milk should be the exclusive diet.

ENTERO-COLITIS.

SYNONYM.—Inflammatory diarrhœa.

DEFINITION.—A catarrhal inflammation of the lower portion of the small ilium and the upper portion of the large intestines, with a great tendency to ulceration of the intestinal glands if the catarrh becomes chronic; characterized by moderate fever, nausea, vomiting, pain and emaciation.

CAUSES.—Improper and indigestible food; summer temperature; impure air; uncleanliness; exposure to cold and damp air.

FORMS.—Acute and chronic.

PATHOLOGICAL ANATOMY.—Acute variety; hyperæmia, swelling, œdema and softening of the mucous membrane of the lower portion of the small and the upper portion of the large intestines, with hyperplasia of the intestinal follicles, their excretory follicles enlarged and tumid, readily distinguished as grayish or blackish points in the middle of the glands; the patches of Peyer are also enlarged, tumefied and project above the level of the surrounding mucous membrane, the orifices of the follicles appearing as dark points; these patches often have an ulcerative appearance, but upon close examination such is found not to be the case.

Chronic variety; the thickening and infiltration have extended to the submucus and muscular coats, followed by induration of the tissues, so that the walls of the intestines are often abnormally rigid. Ulceration occurs, which extends through the entire thickness of the membrane. "These ulcers, when isolated, are from one to one and a half inches in diameter, oval or circular in shape, and either have sharp-cut edges, or the mucous membrane bounding them is undermined." The small ulcers often coalesce, so that large, irregular ulcerated patches are formed, having for their base the submucus or muscular coats, and have a grayish white color, the mesenteric glands are enlarged, but seldom, if ever, undergo ulceration.

SYMPTOMS.—Acute form; may develop slowly, with restlessness and fretfulness, or suddenly with feverishness, loss

of appetite, thirst, nausea, moderate vomiting, abdominal pains; or diarrhœa may be the first indication of illness on the part of the child. The abdomen is enlarged and tender. Emaciation is marked in proportion to the severity of the symptoms; in marked cases the child is reduced to a condition of the greatest debility within a few days.

Chronic form; usually follows the acute form, the character of the symptoms being less severe, but decidedly persistent, the strength fails, the temper is very irritable, the complexion grows dark, shallow and unhealthy, the skin dry and harsh, and in consequence of the marked emaciation, either hangs in folds around the shrunken limbs, or is drawn tightly over the joints.

Duration.—Acute, from ten days to about two weeks, subsiding gradually; chronic, from one to two or three months, or even longer.

Diagnosis.—The acute form can hardly be mistaken for any other condition, if the characteristic abdominal symptoms are present. The Chronic Form has been frequently mistaken for diarrhœa of tuberculosis, an error that can hardly occur if a physical examination of the chest has been made.

Prognosis.—Always a very serious malady, and proves fatal if it attacks the weak during midsummer, or when surrounded by unfavorable hygienic conditions; in vigorous children, who have passed through their best dentition, the prognosis is quite favorable.

Treatment.—Drug treatment symptomatic. During and after an attack of entero-colitis, for at least a week Bovinine in peptonized milk should be the exclusive diet.

CHOLERA INFANTUM.

Synonyms.—Choleriform diarrhœa; summer complaint.

Definition.—An acute catarrhal inflammation of the mucous membrane of the stomach and intestines, together with an irritation of the sympathetic nervous system, occurring in children during their first dentition; characterized by severe colicky pains, vomiting, purging, febrile reaction and prostration.

Cause.—Age; bad hygiene, continuous high temperature, improper food; dentition; constitutional, as in the feeble, delicate, nervous or irritable.

PATHOLOGICAL ANATOMY.—Resembles closely, if not identical with, the phenomena of catarrhal gastritis and enteritis, together with a powerful irritation of the fibres of the sympathetic system.

SYMPTOMS.—The onset is sudden in a child previously well, or in a child suffering from bowel affection.

Begins with vomiting, purging, abdominal pain, fever, rapid pulse, and intense thirst.

The vomited matter is partly digested food, sero-mucus, and finally bilious, and is accompanied with distressing retching. The thirst is a marked phenomena of the disease, and ice and water will be taken incessantly, although rejected only a few moments after.

The stools are first partly fecal, but soon watery or serous, soaking the clothing, leaving a faint greenish or yellowish stain: their odor is musty, at times fetid; their number is from ten to twenty in the day.

Pains precede the vomiting and purging, colicky in character.

The fever begins at once, the temperature varying from 101° to 105°, with morning remissions. The pulse is rapid and feeble, ranging from 130 to 160.

These symptoms continue but a few hours, before rapid wasting ensues, the body shrinks, the eyes are sunken and partly closed, the mouth partly open, the lips dry, cracked and bleeding. The child, at first irritable and restless, passes into a semi-comatose condition, the pulse becoming more and more feeble, the surface has a clammy coldness, the contracted pupils not responding to light, and the stupor deepens, death soon following or the symptoms slowly ameliorate, convalescence being slow and tedious.

DIAGNOSIS.—The entero-colitis or inflammatory diarrhœa of childhood is constantly being mistaken for cholera infantum. The symptoms of the former are: Gradual onset; with fretfulness, loss of appetite, feverishness, nausea, and moderate vomiting, soon followed by diarrhœa, the stools being semi-fluid, greenish, mixed with yellowish particles of fæces and undigested casein, with a sour odor, the "chopped spinach" stools, the abdomen distended and tender, moderate fever and thirst, and having a duration of about two weeks.

PROGNOSIS.—Difficult to predict the result, and so care must be used in giving a prognosis. The duration of the choleraic symptoms is short, under five days, but relapses are common, and the sequelæ are protracted.

TREATMENT.—Drug treatment symtomatic. In this condition, if children that were poorly nourished and anæmic were put on Bovinine from the beginning of the hot months and continued throughout, their chances of developing cholera infantum would indeed be slight. Where the condition is developed, the patient should be kept on Bovinine exclusively and continued for at least a week after all symptoms have subsided. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient. It should be preferably be given in peptonized milk with a little whiskey.

BOVININE IN INFANTILE TREATMENT.

IN ANÆMIA, IN INANITION, CHOLERA-INFANTUM, MARASMUS, ETC.

INFANTILE ATROPHY, ETC.

By T. J. BIGGS, M. D.

Although the group of symptoms which form the condition known as marasmus is common enough in all forms of gastro-intestinal disease in children, and especially so in the chronic variety, yet there is a condition (described by Starr, Rotch, and others) in which, without any particular part of the digestive apparatus, or, indeed, any organ in the child's body, being at fault, the child undergoes a progressive decline, this condition being accompanied by characteristic symptoms of very obscure pathology. In other words, the infant (for it is generally during the first year of life that the condition occurs) slowly starves. It may get food enough; the food may be rich enough to support the lives of other children; nevertheless, for some reason it is not adapted for digestion by that particular infant. In another class of cases the food given is deficient in nutritive properties, or, being nutritious enough in a general sense, the food is not suitable for a child of the age of the patient. The infant, then, is very much in the position of a carnivorous animal fed on granivorous food, or *vice versa*.

The causes may be divided into three classes: (1) Causes due to a condition of general feebleness in the child itself; (2) causes due to defective constitution of the mother's milk; (3) defective methods of artificial feeding.

The first group of causes may be found in a certain number of infants, not a large number, whose digestive organs, through feebleness of constitution, are incapable of assimilating any food, the mother's milk included. Many of these infants are the offspring of families tainted by specific, tubercular, or scrofulous diseases, or are descendants of those persons who, for several generations, have undergone the various depressing influences, nervous and otherwise, which are caused by poverty, overwork, dissipation, bad food, and unhealthy surroundings; feeble children, in whom all the bodily functions are depressed. In the second class of cases, the mother's milk is at fault. Here, also, family history and the conditions mentioned as causes in the first class play an important part; but in this second class the nutritious principles of the mother's milk are much below the normal. The nursing mother should have suitable food in sufficient quantities, and of such kind as to make good milk. In the poor, the abuse of tea, which is generally of bad quality, and is often taken in large amounts, is not an uncommon source of an inferior quality of milk. In some cases the mother's milk contains too high a percentage of fat, or even of proteids, for the digestion of her child; or, where these two elements are normal in amount, the child may be too feeble to digest its mother's milk. In some cases the too frequent feeding of a poorly-developed infant, or allowing it to nurse too large quantities of milk, may finally induce a chronic condition of malnutrition.

By far the most common cause is bad artificial feeding. This subject has been dealt with at length in books on infant feeding; but we must say here that of all the cases of atrophy which yearly come under our notice, probably three-fourths are bottle-fed, the largest number being fed on condensed milk, starchy or farinaceous foods, or unmodified cow's milk. We are sorry to say that in many cases physicians attending such cases are at fault, as they rely too much in the treatment of these infants on the administration of drugs, and far too little to the study of the patient's digestion and nutrition, and the adaptation of

the proper modifications of milk (the infant's natural food) to its digestive apparatus. Food given in excessive quantities, and at irregular intervals, may, by its remaining undigested and undergoing subsequent fermentation, produce chronic indigestion, followed later by marasmus. The use of improper methods of feeding, dirty nursing-bottles, in fact, a general lack of cleanliness, and filthy surroundings, all act as causes.

The pathologic changes found in acute atrophy vary considerable, and in many cases seem to bear no relation to the disease. In the majority of cases the post-mortem appearance of the various organs of the body are simply those found in any case of slow starvation. There is practically no fat in any of the parts of the body where it is usually deposited, but in many cases of advanced type, fatty degeneration of various organs, particularly the muscular tissues, has taken place. All the muscles are in a state of atrophy, and this applies, not only to such muscles as are fouud in the extremities, but the heart and muscular coats of the intestines may also share in this change. Quite frequently there is engorgement of the lymphatics here and there throughout the body, but these changes occur in no regular order, and seem to bear no relation to the disease.

The earliest symptoms of the disease are, usually, progressive loss of weight and constant desire for food. The child seems to be continually hungry; it will eagerly grasp the nipple and suck ravenously. Almost from the very beginning the infant is irritable, continually crying, and seems never satisfied. The form soon loses its plumpness, the ribs begin to show, and the various joints are plainly marked. The wasting is most distinct in the limbs and face, the latter assuming an expression which is eminently characteristic of the disease. The eyes become sunken, and the forehead by contrast appears prominent. There is great wasting in the lower part of the face, so that it assumes a triangular shape; the ears are prominent, the cheeks sunken, and deep furrows appear around the mouth; the whole face assumes an aged type; the abdomen is distended, although generally not to a marked extent. There is great emaciation of the upper and lower extremities, and this is especially conspicuous in the

thighs. The muscles appear to be small and atrophic, and are covered by no fat. The skin hangs in folds, is generally dry and scurfy, and may at times be covered by various forms of eruption. The temperature is usually normal, indeed, may be below the normal point; but, on the other hand, it is not uncommon for these infants to have a slight rise of temperature at night. The appetite is generally ravenous, but each nursing is followed by severe vomiting, the vomited matter being mostly composed of sour curds. The tongue is coated, and usually presents the appearance most generally seen in chronic gastro-intestinal disease. The digestion is poor, and the powers of assimilation in many cases seem to be almost nil. The bowels are generally irregular; either diarrhœa or constipation may accompany the disease. The movements are greenish or greenish-yellow in color, and are very frequently accompanied by the discharge of large quantities of stringy mucus. Colic is nearly always present, and is generally worse at night. The nervous symptoms are sometimes very severe. In the earlier stages, restlessness, particularly at night, general irritability, and night-terrors are present, and in severe cases convulsions are not at all uncommon. Starr relates that he has seen cases in which there was retration of the head and a characteristic decubitus simulating quite closely tubercular meningitis. The resemblance was increased by general hyperæsthesia and the presence of the *tache cerebrale.* Physical signs referable to the heart and lungs are generally negative, although it is not an uncommon thing to find a considerable amount of bronchial irritation appearing during the teething period. The urine is usually of a darkish yellow color, and ranges from 1.010 to 1.013 in specific gravity. According to Starr, it is frequently cloudy or milky, becoming clear as recovery progresses. The sediment deposited on microscopic examination will be found to contain amorphous and crystallized urates, cylinders, mucous, and various fatty elements. Albumen and sugar may be present.

The disease with which simple atrophy is most apt to be confounded is general tuberculosis; indeed, the symptoms of the two diseases are so much alike that it may almost be impossible to differentiate between them. In tuberculosis, however, the elevation of temperature is greater

and more regular, with morning remission and evening rise. There is also cough, bronchial rales throughout the chest, and occasionally slight œdema of the legs. Tubercular meningitis may be differentiated by the fact that in this disease we have a full pulsating fontanelle, whereas in acute atrophy the fontanelle is always depressed. In tubercular meningitis the abdomen is generally scaphoid, and there is also present in almost all cases the hydrencephalic cry. Syphilis may be distinguished by its characteristic eruptions, the presence of mucous patches, and by the specific coryza usually seen soon after birth. Enlargement of the spleen and liver, and the characteristic enlargement of the knee joints, any or all of which are seen in syphilitic subjects, will also aid in diagnosis.

Although the outlook for the recovery of children affected by simple atrophy is not always the best, yet, at the same time, with improved methods of feeding, particularly by the accurate methods used in Bovinine feeding, a very large proportion of these cases ought to recover.

To properly attack Infantile Atrophy, two points of great importance must be constantly kept in mind. First, attention to the mother's physical condition, which can be best accomplished by thorough, complete and proper nourishment; then attention to the physical condition of the child.

Nothing can compare to Bovinine as a remedy *par excellence* to meet and combat a malnutrition in the mother, and to check the pathological process in the child and rapidly restore it to a normal standard. After a large clinical experience in the use of Bovinine in the treatment of this condition, I have observed that the mother rapidly gained strength, and health returned where doses of from a teaspoonful to a wineglassful every three hours were given. In the child, from five drops to half a teaspoonful from every hour to every three hours, according to the age and condition of the patient. First improvement is marked in the improved quality of the blood. Then the child seems to be less nervous, and begins to take on flesh. I believe it wise to wean the child and feed it on sterilized milk, to which is added Bovinine from a tablespoonful to two tablespoonfuls to the pint.

In the course of the second year there comes a time when the milk diet begins to be insufficient for the growing child,

and Nature calls for a change, while yet the system is in many cases unprepared for solid food. This kind of deadlock results in diarrhœa or constipation, anæmia, restlessness, fretfulness, etc. In such cases the fit and radical remedy will be found in the administration of, say, ten drops of Bovinine in a little milk at intervals of three hours.

Little Robert Valverdie, a patient who came under my care in the condition of malnutrition above described (after trying all the usual medical helps, with no benefit), was immediately restored by this simple treatment. On the second day of taking Bovinine, the constipation and other trouble began to be relieved, and on the third day all signs of ill-health had disappeared as if by magic. This simple treatment was continued for three weeks, the child thriving beautifully.

By C. M. Wickham, L. R. C. P. & S. Edin.,
Res. Med. Off., Babies Castle, Hawkhurst, Kent.

I have much pleasure in expressing the high opinion I have formed of Bovinine, after giving it a thorough trial in this institution. The facility with which it can be taken and digested by even the youngest infant constitutes it a valuable and quick restorative in the wasting diseases of children, and in convalescence from acute disease. I shall certainly continue to prescribe Bovinine.

By M. M. Loudon, M.D., Acton, W.

I have great pleasure in testifying to the excellent results from the use of your Bovinine, especially in very young children. In one typical case I ordered it for a child five months old, suffering from constant vomiting, diarrhœa and wasting. Several alterations in food with drugs gave no relief. At last I tried Bovinine and a precious diet, and I am glad to say the child improved daily, the symptoms all disappearing; it gained flesh rapidly, and is now a fine, healthy, fat child.

One important fact as to your preparation is that it keeps well. I shall continue ordering Bovinine for my patients, with confidence as to favorable results.

By Powell Hudsmith, L.R.C.P.I., Buckley.

I must first thank you for the samples you kindly sent me; I must also write you in praise of their nourishing power.

I gave one bottle to a child, aged a year and a-half, delicate, puny—in fact, only about the weight of what a child ought to be at three months. No food would stay on its stomach, but since it has had the Bovinine it is certainly coming on well, and now there is every prospect of the child living; it (the food) has answered wonderfully well with this child.

I am only too glad to testify to the valuable food you have introduced.

By A. H. R. Guiley, M.D., South Easton, Pa.

I have recently used Bovinine in a case of prostration during severe diphtheritis, where the child, after being deemed dead by the friends and neighbors for nearly half-an-hour (so they told me), rallied, and when I called again in the morning was sitting up. In five days she ran about the house.

By J. R. C. Gorrell, M.D., Wilmington, Del.

I cannot too sincerely express my thanks for your Bovinine, to which my attention was most opportunely and fortunately called. My babe was sick all summer of cholera infantum, which had emaciated and so wasted it as to produce marasmus, and it was, when first taking the food, in an almost helpless and hopeless condition. It is now thriving and growing, being amply nourished, and a living triumph for proper food intelligently administered. I wish you the success which your preparation so richly deserves.

By W. J. Martin, M.D., Pittsburgh, Pa.

My attention was first called to Bovinine in the latter part of August of this year. From that time I have given it in quite a number of cases of cholera infantum and the so-called summer complaint of children, and have been gratified beyond my expectations with the results. I can recall several cases where impending death from inanition was averted beyond all question by the Bovinine. No

other food that I am acquainted with (and I think I have tried nearly all) has given me the uniform good results that this one has.

By S D. Dewey, M.D., Richmond, Va.

I have recently used your Bovinine with the most gratifying results. A child who had suffered for many days with the most distressing irritability of stomach, and to whom a number of tried remedies had afforded no relief, after the first dose of Bovinine quietly slept, and, waking with no return of nausea, made rapid recovery. Thus, I am prepared to say that, in addition to its superior food qualities, so easily assimilated, Bovine possesses the great merit of being acceptable to the palate, and is tolerated by the most irritable stomach.

By Wm. B. Clarke, M.D., Indianapolis, Ind.

One of the difficult problems of the age is to raise a bottle-fed infant. It happens that milk can be greatly improved by the addition of a nutritive ingredient. This nutritive ingredient goes under the familiar name of Bovinine, and I doubt if any description of the preparation is needed, it is so well known. It is not my intention at this time to write a long and ponderous article on this subject, my object only being to utter a few words of advice—viz: don't forget the before-mentioned Bovinine in infant cases, and be sure you try it *before* a long list of other expedients that could be named. First, be sure that you have the very freshest milk obtainable. The milk should be strained through fine cloth when received, to get rid of the inevitable sediment from milking and transportation, and kept at the uniform temperature of 45 degrees or 50 degrees F. The simplicity in preparing this food is of great advantage. There are no delicate household chemistry or cooking feats to perform—nothing but warming the milk and adding a few drops of the Bovinine.

CHOLERA INFANTUM.

By Dr. T. J. Biggs, Sound View Hospital.

Henry M——; age three years; American. Diagnosis: Cholera Infantum. August 8th, 1900, child was brought to the hospital. Mother said it had been suddenly seized

with diarrhœa, accompanied by vomiting, severe abdominal pain, high fever, rapid pulse, and intense thirst. This condition was presenting at the time of the child's entrance to the hospital. The vomited matter consisted of partly-digested food, serous mucus, and bile. The vomiting was accompanied with distressing retching. Thirst was a constant symptom. The stools were very frequent, serous, soaking the clothing, leaving a faint yellowish stain. The odor was fœtid, and the number of stools about fifteen in twenty-four hours. The temperature would vary from 101 degrees to 105 degrees with morning remissions, pulse rapid, ranging from 130 to 160. Rapid wasting had begun, patient having become shrunken, the eyes sunken and partly closed, mouth partly open, the lips dry, cracked and bleeding.

The nurse was ordered to give the child ten drops of Bovinine every hour in a little barley water. A spice poultice was applied over the bowels. In an hour the vomiting began to abate, and the child seemed to be in a great deal of pain and very restless. Small doses of the acetate of morphine and a little biniodide and bismuth were administered. Under the influence of this the child rapidly quieted down.

On the evening of the 9th, the little one's temperature had dropped to 99 degrees in the morning and 100½ degrees in the evening; the pulse was slower and stronger. Treatment continued.

On the 10th, the child retained the Bovinine without any distress—in fact, cried for it. The vomiting had entirely ceased. The pain had resolved itself into a soreness. Temperature normal, pulse greatly improved. Bovinine was now ordered, half a teaspooniul in Pasteurised milk every two hours, and all other medication discontinued.

From this time on convalescence was uninterrupted, and the patient was discharged on the 29th.

It will be observed here that the only medication outside of the Bovinine was a little something to relieve the pain and to quiet the nervous phenomena, and that in spite of this the recovery was rapid, complete and uninterrupted. Bovinine is the ideal food and medication in this condition. It gives the alimentary tract the much-needed rest, and, being perfectly sterile and antiseptic, lessens the danger

of sepsis; and through its antiphlogistic qualities, rapidly reduces the intestinal irritation.

IN INFANT AND INVALID FEEDING.

By Dr. Herman D. Marcus (Philadelphia Times and Register).

In the treatment of invalids, whatever food be given the quantity should not be large. If insufficient, it is best to increase the nutritive value without increasing the bulk. This may readily be done by adding Bovinine from a few drops to a teaspoonful to each cup of food.

"A child eight months old had ceased to nurse, and all efforts at feeding occasioned such pain that the struggle still further exhausted the child. Bovinine was ordered in ten-drop doses every half-hour, and as the baby took it readily, the dose was increased to half-a-teaspoonful. This was the only nutriment taken for days, the child refusing to take the blandest food known."

IN CHOLERA INFANTUM.

By W. C. Wile, M.D.

Dr. Wile relates in the New England Medical Monthly an instance in the family of a neighboring doctor who kept his baby, which was suffering from cholera infantum, alive for three days by giving it nothing but one drop of Bovinine every fifteen minutes, which was dropped upon the tongue and allowed to get down into the stomach as best it could. The child, which was in its second summer, got well, and the recovery is, without question, due to the sustaining power of Bovinine.

ACUTE DYSENTERY.

Synonyms.—Colitis; colonitis; ulcerative colitis; bloody flux.

Definition. — An acute inflammation of the mucous membrane of the large intestines, either catarrhal or croupous in character; characterized by fever, tormina, tenesmus, and frequent, small, mucous and bloody stools.

It occurs either in the sporadic, endemic, or epidemic form.

Causes. — Sporadic and endemic dysentery is caused most commonly by atmospheric changes, such as hot days with cool nights, also from malarial attacks, and rarely from errors in diet.

Epidemic dysentery prevails in armies, jails, and tenement houses, propagated by decomposition of dysenteric stools, and the unfavorable hygienic surroundings.

It is not contagious.

Pathological Anatomy.—Sporadic dysentery is catarrhal in character; congestion, swelling and œdema of the mucous membrane and sub-mucous tissue, with an overproduction of mucous; the follicles are enlarged, from retention of their contents, the result of the swelling; the congested vessels often rupture; the mucous membrane softens in patches, and is detached, forming ulcers. Recovery follows, if the destruction of tissue is small, smooth cicatrices, minus gland structure, marking the site.

Epidemic dysentery is croupous in character; begins with intense congestion, swelling, and œdema of the mucous and sub-mucous tissue, with extravasations of blood and the whole mucous membrane covered with a firm, fibrinous exudation; the mucous membrane softens and sloughs, leaving large ulcers and gangrenous spots. If recovery occur, large cicatrices form, which narrow the calibre of the intestinal tube.

The mesenteric glands enlarge, soften, and abscesses form in them; the liver becomes the seat of small abscesses, from embolic obstruction of the radicles of the portal vein; the heart muscles are flabby and more or less fatty.

Symptoms.—Catarrhal form begins gradually, with diarrhœa, loss of appetite, nausea, and very slight fever, which continues for two or three days, when the true dysenteric symptoms develop, to-wit: pain on pressure along the transverse, and descending colon, tormina or colicky pains about the umbilicus, burning pain in the rectum, with the sensation of the presence of a foreign body and a constant desire to expel it, or tenesmus, which is almost constant; the stools for the first day or two contain more or less fecal matter, but they soon change to a grayish, tough, transparent mucous, containing more or less blood, and pus; during the tormina, nausea and vomiting may occur; the urine is scanty and high-colored, the number of stools range from five to twenty or more in the twenty-four hours.

The duration is about one week, the patient being much emaciated and enfeebled.

The croupous or epidemic form sets in suddenly, nausea, vomiting and great prostration, cold skin, feeble pulse, and emaciation with anxious expression, the odor surrounding the patient being fetid.

The duration of the grave symptoms is three or four days, when collapse and death occur or slow convalescence begins, continuing for weeks.

Complications, peritonitis; hepatic abscesses; phlebitis of the intestinal veins; intestinal perforation.

DIAGNOSIS.—Enteritis lacks the tenesmus and characteristic stools.

Peritonitis, when idiopathic shows higher temperature, greater tenderness and constipation.

PROGNOSIS.—Catarrhal form favorable. Croupous form, the prognosis always grave.

TREATMENT.—Drug treatment symptomatic. This condition is often due to atmospheric changes and generally attacks anæmic and debilitated patients. Therefore, Bovinine should be given in small doses, oft repeated, to the exclusion of all other food, and continued for two weeks after all symptoms have subsided.

TYPHILITIS.

SYNONYMS.—Inflammation of the cæcum· catarrh of the cæcum.

DEFINITION.—A catarrhal inflammation of the mucous membrane of the cæcum and ascending colon; characterized by pain, tenderness, constipation, and in certain cases a characteristic vomiting.

CAUSES.—In a majority of cases mechanical, from the lodgment of seeds or hardened fæces.

PATHOLOGICAL ANATOMY.—Similar to the catarrhal inflammation of dysentery.

SYMPTOMS.—Pain and tenderness in the right iliac fossa and the ascending colon, with some prominence in this region; the bowels are usually constipated, or small liquid stools may occur from time to time, due to the accumulation of hardened fæces in the sacculated periphery of the cæcum, leaving a central canal, through which the liquid contents of the upper bowel can pass.

In severe cases, "the local pain, tenderness and swelling are greater, there are impaction of fæces and no move-

ments. There are decided fever, restlessness, and also nausea and vomiting. The vomited matters, at first the contents of the stomach, then the duodenum, with bilious matter, and ultimately, if the impaction persists, of material having the odor of fæces. With these symptoms occur great depression of the vital powers. Peritonitis is finally developed by contiguity of the tissue or by rupture of the bowel."

DURATION.—The mild form lasts about one week. The severe form may terminate in subacute peritonitis, continuing about two weeks.

DIAGNOSIS.—The mild form is distinguished from other intestinal affections, by the localized pain, tenderness and prominence, and the constipation.

The severe form can only be distinguished from the other forms of intestinal obstruction by the history of the case and attack, and the results of treatment.

PROGNOSIS.—Mild form favorable. Severe form grave, although not necessarily fatal.

TREATMENT.—Drug treatment symptomatic. Thoroughly purge the patient and put them on a Bovinine diet, in doses ranging from five drops to a wineglassful, from every hour to every four hours, according to the age and condition of the patient.

PERITYPHLITIS.

SYNONYMS.—Perityphlitic abscess; suppurative appendicitis; pericæcal abscess.

DEFINITION.—An acute inflammation of the connective tissue around the cæcum, tending to the formation of an abscess; characterized by pain, swelling, and febrile reaction.

CAUSES.—Injuries to the abdomen over the cæcum; and also extension of the inflammation from the cæcum by perforation. Often occurs with typhilitis.

SYMPTOMS.—Begins with a feeling of weight, soreness and paroxysms of acute pain extending into the hip, thigh and abdomen, with the development of a hard swelling in the right iliac region. Its special tendency is towards suppuration, which is announced by regular chills, feverishness, and sweats, and a feeling of tension and throbbing. Its development is slow, and if associated with typhilitis the symptoms of that affection are added.

Diagnosis.—Differs from typhilitis by the abscence of colicky pains, dyspeptic symptoms, costive bowels, and tympanites preceding a development of a tumor; in peri-typhilitis the tumor is present with the development of the symptoms.

Psos abscess is not associated with intestinal symptoms, and the discharge is free from fecal odor. Renal and ovarian tumors should not be sources of error. The possibility of hernial tumors must not be overlooked.

Treatment.—Drug treatment symptomatic. Surgical treatment as indicated. An absolute Bovinine diet during attack and for two weeks afterwards in doses ranging from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient.

PROCTITIS.

Synonyms.—Catarrh of the rectum; dysenterry; rectitis.

Definition.—A catarrhal inflammation of the mucous membrane of the rectum and anus; characterized by pain, tenesmus and frequent stools of hardened fæces, or of mucus, pus or blood.

Causes.—Chief cause constipation; also sitting on damp ground or stone steps; habitual use of enemata or of purgatives; diseases of the liver.

Pathological Anatomy.—Similar to those occurring in catarrhal dysentery.

Symptoms.—Uneasy sensations and burning in the rectum, with a constant desire for stool, or tenesmus, often so severe as to cause prolapse of the mucous membrane. The stools may be either hardened fæces or scybala from the distended colon, which cause intense pain when they reach the rectum; or the stools may be mucus, muco-pus or bloody or blood-streaked. Generally there are present nausea, especially during the tenesmus, headache, feverishness and malaise. In severer cases their is strangury, and with the tenesmus, straining with urination.

If the case be protracted or severe, inflammation of the connective tissue around the rectum occurs, causing periproctitis, which usually terminates in various kinds of fistulæ.

Complications.—Periproctitis; peritonitis; hepatic abscesses.

DIAGNOSIS.—In males, the disease cannot be confounded with any other affection, save, perhaps, hemorrhoids. In females, displacement of the uterus may somewhat simulate the symptoms of proctitis.

PROGNOSIS.—Uncomplicated cases favorable. Either of the complications adds greatly to the gravity of the affection.

TREATMENT.—Drug treatment symptomatic. Bovinine diet in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient, also rectal injections of Bovinine and salt solution in proportion of one-fourth Bovinine and three-fourths salt solution, employed from once to three times daily.

INTESTINAL OBSTRUCTION.

SYNONYMS.—Intestin occlusion; strangulated hernia; invagination; intestinal stricture; ileus.

DEFINITION.—A sudden or gradual closure of the intestinal canal; characterized by pain, nausea, vomiting, constipation, and finally collapse.

CAUSES.—The numerous causes are arranged as follows:

1. Accumulations within the bowel, of hardened fæces, or foreign bodies.
2. Strictures, the result of cancer, ulceration, or cicatrices.
3. Pressure against the bowel, from peritoneal adhesions, tumors, and abnormal growths.
4. Strangulation, due to the numerous forms of hernia.
5. Invagination, or intussusception, the most common.
6. Twisting, volvulus or rotation of the bowels.

PATHOLOGICAL ANATOMY.—Invagination is the only form calling for special description. It is usually caused by the lower portion of the ilium slipping down into the cæcum, as the finger of a glove might be invaginated, causing thus an actual mechanical obstruction; this is produced by a spasm of the ileum, whereby its calibre is greatly diminished, thus permitting its descent into the lower bowel. Resulting from this occlusion or compression are congestion, inflammation, with secondary constitutional reaction and death, or more rarely the invaginated bowel sloughs off, and is avoided by stool, union taking place at its site and recovery following.

SYMPTOMS.—The onset of the symstoms may be either sudden or gradual, and are as follows:

Constipation, with more or less severe colicky pains, not relieved by either purgatives or injections; feeling of weight and soreness with distention of the abdomen and nausea and vomiting; the symptoms all grow more pronounced, pain becoming violent, tenderness in limited areas, the vomiting becoming stercoraceous; the abdomen hard and tense, the eyes sunken, the pulse quick and feeble, the skin cold and covered with a clammy sweat. The above continue more or less pronounced for a week or ten days, when collapse and death occur, or more rarely there is a gradual return to health.

Cases occur rarely in which small, fecal, muco-purulent stools containing more or less blood exist, instead of constipation.

DIAGNOSIS.—One of the most difficult, and can only be solved by a careful study of the case along with the different causes producing the affection. The site of the occlusion can rarely be determined positively.

Intestinal obstruction may be mistaken for intestinal colic, hernia, enteritis, peritonitis, hepatic, or renal colic.

PROGNOSIS.—Always grave, but guided by the cause. Impacted fæces favorable. Invagination less favorable, but recoveries occur; the longer the symptoms continue, the more favorable the outlook. Strangulations unfavorable, but many recoveries recorded. Strictures due to cancer, cicatrized ulcers and the like, are the most unfavorable.

TREATMENT.—Drug treatment as indicated; surgical treatment as necessary. Bovinine diet throughout and continued for ten days after relieved in doses from five drops to a wineglassful from every hour to every four hours as indicated.

INTESTINAL PARASITES.

TAPEWORMS.

VARITIES.—Tænia solium; Tænia saginata; Bothriocephalus latus.

CAUSES.—The Tænia solium, the "armed tapeworm," is the most common in this country. It is derived from the embryos contained in pork, known as the cysticercus cellulosus.

The Tænia saginata, the "unarmed tapeworm," a not uncommon variety, is derived from the embryos contained in beef, known as cysticercus bovis.

The Bothriocephalus latus, also "an unarmed tapeworm," the largest parasite infesting man, is supposed to be derived from an embryo found in fish.

The embryo or ova is introduced into the intestinal canal with the food and drink. The parasite reaches its final growth after its entrance into the intestines.

Those handling fresh meats or eating uncooked animal food are most liable to be affected.

Uncleanliness is also an important factor.

DESCRIPTION.—The tænia solium is from six to thirty feet in length, has a globular head, a slender neck connecting its numerous flat segments or joints. The head measures about 1-40 of an inch, has a double circle of hooklets—whence the term "armed tapeworm," and is provided with from two to four suckers. The segments or joints are flat, and vary from one-eighth to one-half an inch in length, and each contain both male and female sexual organs, the uterus being a long numerously branched tube, in which the ova develop; the ova measure about 1-1,700 of an inch in diameter.

An ordinary tapeworm contains some five million ova.

The parasite is firmly imbedded in the mucous membrane of the upper third of the small intestiues by its hooklets and suckers.

The lower or terminal segments represent the adult and complete animal, and are termed the proglottides, which separate from the parasite and are discharged either alone or with the fæces.

The tænia saginata is from ten to forty feet in length, has a rounded or oval-shaped head, measures about 1-10 of an inch and has four strong and prominent suckers, but no hooklets, whence the term "unarmed tapeworm;" the neck is short and thick and the segments are larger, stronger and thicker than those of the T. solium.

The Bothriocephalus latus is the largest of the three Cestoda, the length ranging from fifteen to sixty feet, the head oval, measuring about 1-10 of an inch, a short neck, the segments being nearly three times as broad as they are long. Its color is a dull bluish-gray. Zoologically considered, this variety is not a true tapeworm.

SYMPTOMS.—Not unfrequently a tænia produces no symptoms whatever.

Usually, however, there are colicky pains throughout the abdomen, inordinate appetite, disorders of digestion, emaciation, constipation, attacks of cardiac palpitation, faintness, disorders of the special senses and pruritus of the anus and nose. Any or all of these symptoms may be present.

A large meal will often remove the majority of the symptoms present.

In a large number of cases the discovery of the segment is the first intimation of the presence of the parasite.

TREATMENT.—Drug treatment symptomatic. Bovinine diet throughout treatment and continued for six weeks afterwards. In this condition, the Bovinine, while it does nourish absolutely and perfectly the human body, it seems to be fatal to the intestinal parasites. Bovinine will rapidly overcome anæmia, emaciation and debility produced by the presence of these parasites.

ROUND WORMS.

VARIETIES.—Ascaris lumbricoides; Oxyuris vermicularis.

CAUSES.—The ascaris lumbricoides; is one of the most common of the parasites affecting the human family, and developes in the intestines, either after the entrance of the ova of the same, or from the so-called "intermediate parasites." Their entrance is affected by means of food and drink.

The oxyuris vermicularis develops in the large intestines, from either its peculiar ova, or the so-called "intermediate parasite," these finding their way into the bowel with the food and drink, or by direct contact.

DESCRIPTION—The ascaris lumbricoides, or the round worm, is of a brown color, a cylindrical body, from ten to twenty inches in length, and from an eighth to a fourth of an inch in circumference; the head terminates in three semilunar lips, each having about two hundred teeth. The ova are oval-shaped, are produced in immense numbers, some sixty million in mature female, have wonderful vitality, resisting extreme heat or cold.

The round worm inhabits principally the small intestines, although it often migrates to other parts. They are found in numbers from one to several hundred.

The oxyuris vermicularis, thread or seat worm, resembles an ordinary piece of white thread, measuring from a sixth to a half inch in length, the head terminating in a mouth with three lips the tail terminating as a sharp point. The ova are oval, produced in large numbers, each female containing about ten thonsand; are surrounded by a stout envelope which increases their vitality.

The seat worm, as its name indicates, inhabits the large intestines, especially the rectum, although they frequently migrate to the sexual organs. They vary in number, somtimes the parts frequented being entirely covered.

Symptoms.—The ascaris lumbricoides, or round worm, may be present in great numbers and yet produce no characteristic symptoms other than gastric and intestinal irritation, such as picking the nose, foul breath, colicky pains, nausea and vomiting, diarrhœa and disturbed sleep, such as tossing from side to side of bed and grinding the teeth. Any or all of these symptoms may be present or absent, the only positive proof being the passage of the parasite.

The oxyuris vermicularis, or seat worm, produces intense itching about the anus, with a desire for stool, the passage often containing mucus, the result of the irritation produced by their presence. Should they migrate to the sexual organs, intense itching of these parts result, which, unless speedily corrected, leads in children, to masturbation.

Treatment.—Drug treatment symptomatic. Bovinine diet through treatment and continued for six weeks afterwards. In this condition, the Bovinine, while it does nourish absolutely and perfectly, the human body seems to produce a malnutrition of the intestinal paracites. Bovinine will rapidly overcome the anæmia, emaciation and debility produced by the presence of these paracites.

DISEASES OF THE PERITONEUM.

PERITONITIS.

Synonym.—Inflammation of the peritoneum.

Definition.—A fibrinous inflammation of the peritoneum, either acute or chronic in character, characterized by fever intense pain, tenderness, tympanites, vomiting and prostration. It may be limited to a part-local, or it may involve the whole membrane-general, peritonitis.

Causes.—Acute variety; intense cold; protracted irritation by blisters; blows upon the abdomen; inflammation or perforation of the stomach, intestines, gall, or urinary bladder; vermiform appendix or inflammation of this part or the surrounding parts, inflammation of the pelvic viscera; septicæmia or pyæmia; erysipelas; hernia.

Many surgeons doubt that peritonitis is ever idiopathic disease, but that rarely it does so occur is certain.

Chronic variety: Tuberculosis; albuminuria; scrofula; cancer; sclerosis of the liver.

Pathological Anatomy.—Acute form: Hyperæmia of the serous membrane, the capillaries distended and occasional extravasations of blood from their rupture; the normal secretion is arrested, and the shiny membrane becomes dull and opaque, from an exudation of pure fibrin, which is adhesive, gluing the parts together; if the inflammatory action is now arrested it is termed adhesive peritonitis; if, however, the action progress, an effusion of serous fluid is poured out into the peritoneal cavity, the amount varying from a few ounces to several gallons; this is termed exudative peritonitis. If recovery result, the fluid is absorded, with much of the solid exudation, the unabsorbed portions forming adhesions between the membrane and the different abdominal organs, often causing great deformity and irregularity in their relations. Pus develops if the absorption is not prompt or if any cachexia be present.

The chronic form follows the acute, or is associated with tuberculosis, scrofula, Bright's disease or sclerosis of the liver.

The membrane is irregularly thickened and opaque, with strong adhesions to one or more coils of the intestine, the liver or spleen; the quantity of fluid present is small, purulent or semi-purulent in character, and encysted by the agglutinated membrane.

Symptoms.—Acute form; when idiopathic, the onset is sudden, with a chill, fever, 102-3°, pulse 100-140, wiry and tense, severe pain, cutting or boring in character, and tenderness, becoming so great that the slightest touch aggravates it, the decubitus being on the back, with flexed thighs; the abdomen is distended and rigid, from constipation, effusion and meteorism the diaphragm is pushed up as far as the third or fourth rib in severe cases, causing compres-

sion of the lungs, and displacement of the heart, liver and spleen. There is impaired appetite, and nausea and vomiting are almost constant, as is hiccough. It is a clinical fact that a sub-normal temperature is of frequent occurrence in acute peritonitis.

Secondary form, from extension, begins with local and gradually increasing pain, the temperature increases, tense pulse, and vomiting If from perforation, it is announced by severe pain and all the symptoms of shock. If pus forms, symptoms of hectic develop.

These symptoms continue from six to eight days, when they begin to ameliorate and a tedious convalescence ensues, or pain and tenderness grow more marked, strength fails, surface cold, pulse rapid, and collapse, with hippocratic face, to wit: anxious expression, pinched features, sunken eyes, and drawn upper lip.

Chronic form: Irregular chills, fever and sweats; distended abdomen, constipation, alternating with diarrhœa; diffused tenderness, with points of intensness and hardness; colicky pains during digestion, rapid emaciation and failure of strength. Usually the lower portion of the abdomen give a dull note on percussion, from the presence of fluid, or scattered points of dullness, showing the presence of encysted fluid.

Diagnosis.—The question of diagnosis in this disease is of great importance, as it so frequently is associated with the diseases and accidents of the abdomen. Acute gastritis differs from peritonitis in having a history of corrosive poinsoning, severe pain, limited to the stomach, with early and severe vomiting; while the latter has fever, diffused abdominal pain and tenderness, with decided distension.

Acute enteritis has localized pain and tenderness with marked diarrhœa; constipation being the rule in peritonitis.

Rheumatism of the abdominal muscles occurs with a rheumatic history, is subacute, lacks the great abdominal distension of peritonitis, and while tenderness exists, it is not aggravated by deeper pressure.

Biliary colic, or the passage of a gall-stone, has, as a prominent symptom, excruciating pain, localized over the common bile duct, which is of paroxysmal character and followed by jaundice. In renal coloc the acute pain follows

the course of the ureters, with retracted testicle and altered urinary secretion.

PROGNOSIS.—Idiopathic cases favorable, and especially if they continue longer than a week, as fatal cases usually end during the first week. Cases from perforation unfavorable.

Chronic peritonitis being generally of tuberculosis origin the prognosis is unfavorable, although partial or complete recovery results in the cases following the acute form of the disease.

TREATMENT.—Drug treatment as indicated; an absolute Bovinine diet in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient. Bovinine acts splendidly as a food, giving the aliamentary tract almost complete rest, and at the same time perfectly sustaining the patient. It also seems to exercise an anti-phleugistic action on the inflamed peritonæum.

ASCITES.

SYNONYMS.—Dropsy of the abdomen; peritoneal dropsy.

DEFINITION.—A collection of serous fluid in the abdomen, or more correctly in the peritoneal cavity; characterized by swollen abdomen, fluctuation, dullness on percussion, displacement of viscera, embarassed respiration, plus the symptoms of its cause.

CAUSES.—Ascites may form part of a general dropsy, to wit: Cardiac or nephritic; the most common factor in its production is mechanical obstruction of the portal system, from cirrhosis of the liver, tumors, diseases of the heart or lungs.

PATHOLOGICAL ANATOMY.—The quantity of fluid in the peritoneal sac ranges from a few ounces to many gallons. It is generally of a straw color, or at times, greenish, and is transparent, having an alkaline reaction. When blood is present in any great quantity, it points to cancer as a cause. The peritoneum becomes cloudy, sodden, and thickened, from long contact with the fluid.

SYMPTOMS.—The onset is insidious, and considerable swelling of the abdomen occurs before the disease attracts attention. Constipation, from pressure of the fluid on sigmoid flexure. Scanty urine, from pressure on the renal

vessels. Embarassed respiration and cardiac action, from pressure on the diaphragm upward. The umbilicus is forced outward.

Physical signs; on palpitation, a peculiar wave-like impulse is imparted to the hand laying on the side of the abdomen, while gently tapping the opposite side.

Percussion; patient erect, the fluid distends the lower abdomenal region, with dullness over the site of the fluid and a tympanitic note above; if the patient turns on his side the fluid changes, and dullness over the fluid, tympanitic over the distended intestines.

Diagnosis.—Ovarian tumors differ from ascites in the history, in that the enlargement is limited to the iliac fossa, instead of a uniform abdominal enlargement, not changing its position when the patient changes posture, and by the detection of a tumor by conjoined manipulation through vagina, or by rectal exploration.

Pregnancy differs from ascites in the character of the enlargement, the history, absence of menses, increase of mammæ, change in the neck of the uterus, absence of fluctuation, and the presence of the sounds of the fœtal heart.

Distension of the bladder has been mistaken for ascites; the points of distinction are, in the former the history, presence of tenderness of the bladder, rounded outline of the percussion dullness, and the relief afforded by the catheter.

Chronic peritonitis is differentiated by the history, pain, tenderness, more or less vomiting, thickened abdominal walls, and its generally being associated with tubercle or cancer.

Chronic tympanites presents the enlarged abdomen, but lacks the history, the dullness, and the fluctuation, giving instead a tense abdomen and a universal tympanitic note.

Prognosis.—Influenced by the causes producing it. Idiopathic ascites, which is most rare, terminates in health within a few weeks. If peritoneal, generally favorable. If from organic disease, most unfavorable, for while the dropsy may be removed, it as rapidly returns.

Treatment.—Drug and surgical treatment as indicated. The patient does better under a Bovinine diet than anything else. It should be given in doses from five drops to a wineglassful from every hour to every four hours, as indicated.

DISEASES OF THE BILIARY PASSAGES.

CATARRHAL JAUNDICE.

SYNONYMS.—Catarrh of the bile ducts; icterus.

DEFINITION.—An acute catarrhal inflammation of the mucous membrane of the bile ducts and of the duodenum; characterized by gastro-intestinal derangement, yellowness, itching of the skin, feverishness and mental depression.

CAUSES.—Excesses in eating and drinking; a debauch; malaria; climatic, as cool nights succeeding warm days.

PATHOLOGICAL ANATOMY.—The mucous membrane of one or more of the bile ducts or of the duodenum becomes hyperæmic, swollen and thickened, from an effusion of serum into the submucous tissue; the result of this condition is the closure of the biliary passages, thereby impeding the outward flow of bile. The bile in the hepatic ducts being retained by the obstruction, the result is a staining of the liver substance and an absorption of bile, and its appearance in the blood.

SYMPTOMS.—Begins by epigastric distress, coated tongue, impaired appetite, nausea, with, perhaps, vomiting and looseness of the bowels and slight feverishness, the phenomena of a gastro-intestinal catarrh. In from three to five days the eyes become yellow and jaundice gradually appears over the whole body; the feverishness disappears, the skin becomes harsh, dry and itchy, the bowels constipated, the stools whitish or clay-colored, accompanied with much flatus and colicky pains; the urine heavy and dark, loaded with urates and containing biliary elements.

A few drops of the urine placed on a whitish surface, and a drop or two of nitric acid made to flow against it, will exhibit the following "play of colors:" A greenish tint, from the conversion of bilirubin into biliverdin, quickly followed by blue, violet, red and yellow, or brown.

When the jaundice is complete, the surface is cold, the heart's action slow, the mind torpid, and greatly depressed, and pain or tenderness on pressure over the hepatic region.

DURATION.—In from three to five days after the jaundice appears, the symptoms subside, save the torpid bowels, depression and discolored skin, which slowly disappear, often requiring a week or two.

DIAGNOSIS.—After the appearance of the jaundice, mistakes are impossible.

The numerous diseases of which jaundice is a symptom will be differentiated when treating of them.

PROGNOSIS.—Always favorable; if the attacks are of frequent occurrence, however, they are apt to lead to organic hepatic changes.

TREATMENT.—Drug treatment as indicated. A Bovinine diet, in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, and continued from three to six weeks, to the exclusion of all other foods.

BILIARY CALCULI.

SYNONYMS.—Hepatic calculi; gall stones; hepatic colic.

DEFINITION.—Concretions originating in the gall bladder, or biliary ducts, derived partly or entirely from the constituents of the bile. Their presence is generally not recognized until one or more attempts to pass along the ducts, when an attack of hepatic colic is produced.

CAUSES.—Gall stones result from the precipitation of the crystalizable cholesterine, and its combination with inspissated mucus in the gall bladder or ducts.

A disease of middle life, and more frequent in the obese, and in women.

Gall stones are said to be common in carcinoma of the stomach or liver.

PATHOLOGICAL ANATOMY.—Cholesterine is the chief constituent of biliary calculi. Commonly several stones exist, and rarely one; as many as six hundred are recorded. They are generally found in the gall bladder or cystic duct, rarely in the liver or hepatic duct.

SYMPTOMS.—Hepatic colic begins suddenly, at the moment a gall stone passes from the gall bladder into the cyst duct.

The patient is seized with a piercing, agonizing pain in the region of the gall bladder, and spreading over the abdomen, right chest and shoulder; the abdominal muscles are cramped and tender; there is nausea and vomiting, a small, feeble pulse, cool skin, pale, distorted, anxious face, with, may be, fainting, spasmodic trembling, chills, or convulsions.

The paroxysm continues from an hour or two to several days, with remissions, but entire relief is not afforded until the stone reaches the duodenum, when the pain suddenly ceases.

Jaundice usually follows the paroxysm of pain. When the calculi reaches the intestines, the pain, nausea, vomiting cease, the appetite returns, and the jaundice soon disappears.

Should the calculi become impacted, ulcerative perforation and consequent peritonitis follow, the calculi discharging by the intestine, stomach, or through the abdominal walls.

Diagnosis.—The malady should not be mistaken if severe pain, diverging from the hepatic region, and nausea and vomiting are present, suddenly terminating, and followed by slight jaundice.

Prognosis.—Usual termination is in health. The prognosis becoming more unfavorable if ulcerative perforation result.

Treatment. — Drug treatment symptomatic. Bovinine in this condition should be given, not only as a food, but as a tonic. While it does not directly affect the formation of the calculi, it does keep up the patient's strength, and indirectly, by bringing about a normal standard, combats the process which produces the excess of colestrin within the body. It should be given in doses ranging from five drops to a wineglassful, from every hour to every four hours, according to the age and condition of the patient.

DISEASES OF THE LIVER.

CONGESTION OF THE LIVER.

Synonyms.—Torpid liver; biliousness.

Definition.—An abnormal fullness of the vessels of the liver, with consequent enlargement of that organ; it is termed active when arterial; passive when venous. The condition is characterized by torpidity of the digestive and mental functions, and slight jaundice.

Causes. — Active congestion; heat, atmospherical or artificial; habitual constipation; malaria; excess in eating and drinking; alcoholic or malt liquor. In females, an arrested menstrual epoch may give rise to an attack.

Passive congestion; cardiac and pulmonary diseases.

Pathological Anatomy.—The liver is enlarged in all directions, and is abnormally full of blood. Cases due to obstructive diseases of the heart and lungs present the so-called "nutmeg liver," to-wit: "At the center of each lobule the dilated radicle of the hepatic vein, enlarged and congested, may be discerned, while the neighboring parts of the lobule are pale," the radicles of the portal vein containing less blood.

Long continued congestion establishes atrophic degeneration of the organ; the decrease in size is confounded with the condition of cirrhosis, but the "atrophic liver" is smooth, while the "cirrhotic liver" is nodulated.

Symptoms.—Active congestion; following cause, rapidly produced malaise, aching of limbs, evening feverishness, headache, depression of spirits, yellowish tongue, disgust for food, nausea, and, maybe, vomiting, constipation, scanty, high-colored urine, with a feeling of fullness, weight and soreness in the hepatic region, with dull pain extending to the right shoulder, and slight jaundice, the eye yellow, and the complexion muddy. Duration about a week.

Passive congestion; onset gradual, with a feeling of weight and fullness in the hepatic region, slight jaundice, and symptoms of gastro-intestinal catarrh.

On percussion, the hepatic dullness is increased in all directions.

Diagnosis.—Acute congestion is continually confounded with catarrhal jaundice; the latter begins with marked gastro-intestinal symptoms and distinct jaundice; in the former these are less marked.

Obstructive congestion is diagnosticated by the clinical history.

Atrophic or nutmeg liver will be differentiated from cirrhotic liver when speaking of the latter.

Prognosis. — Active congestion favorable, unless repeated attacks occur, rapidly succeeding each other when "atrophic degeneration" results.

Passive congestion controlled entirely by the cause.

Treatment.—Drug treatment as indicated. A Bovinine diet through the attack and for two weeks afterwards, in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

ABSCESS OF THE LIVER.

Synonyms.—Parenchymatous hepatitis; acute hepatitis; suppurative hepatitis.

Definition.—A diffused or circumscribed inflammation of the hepatic cells, resulting in suppuration, the abscesses being sometimes single, at times double; characterized by irregular febrile attacks, hepatic tenderness and symptoms of deranged gastro-intestinal and hepatic functions.

Causes.—The result of the absorption of putrid material by the portal radicles in dysentery; ulcers of the stomach; malaria; blows and injuries; heat; pyæmia.

Pathological Anatomy.—Hyperæmia, swelling, effusion of lymph, degeneration and softening of the hepatic cells; suppuration, beginning in points in the lobules and coalescing. The abscess walls consist of the liver structure, more or less changed.

The abscess may advance towards the surface of the liver, bursting into the peritoneum, intestines, stomach, gall bladder, hepatic duct or vein, or into the pleura or lungs, or externally through the abdominal walls; after the discharge of pus cicatrization occurs, or the pus may be absorbed, the tissues around forming a dense cicatrix.

Symptoms.—Very obscure. Fever simulating markedly intermittent or remittent fevers; disorders of the gastro-intestinal canal, with obstinate vomiting, debility, and great irritability of the nervous system, melancholia, slight jaundice, constipation, the stools light-colored, and if of long duration, typhoid symptoms.

Locally, if the abscess is near the surface, prominence of the hepatic region, throbbing, limited tenderness, and if it tends to the surface, redness, œdema and fluctuation. The abscess may burst into the intestines, stomach, lungs, or pleura, the symptoms of which will be pronounced.

Diagnosis.—Hepatic abscess may be confounded with hydatids of the liver, hepatic or gastric cancer, abscess of the abdominal walls, and purulent effusion in the right pleural cavity.

The differentiation is most difficult, but great aid is obtained from the use of the aspirator.

Prognosis. — Unfavorable. Recoveries, however, do occur. If the abscess bursts into the lungs, bowels, or ex-

ternally through the abdominal wall, the case is more favorable.

TREATMENT.—Drug treatment as indicated. A Bovinine diet from the onset and continued through the attack and for two weeks afterwards, in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient. If abscess is opened externally, it should be cleaned with Bovinine and hydrozone and dressed with Bovinine pure applications.

ACUTE YELLOW ATROPHY.

SYNONYMS.—General parenchymatous hepatitis; malignant jaundice; hemorrhagic icterus.

DEFINITION.—An acute, diffused or general inflammation of the hepatic cells, resulting in their complete disintegration; characterized by diminution in the size of the liver, deep jaundice, and profound disturbance of the nervous system; terminating in death, usually, within one week.

CAUSES.—Unsettled. It occurs frequently in young pregnant women, from the third to the sixth month of pregnancy. Other causes are veneral excesses; syphilis; action of phosphorus, arsenic or antimony.

PATHOLOGICAL ANATOMY.—Begins with hyperæmia of the hepatic cells, with a grayish exudation between the lobules, followed by softening, dull yellow color, and disappearance of the cells, fat globules taking their place. The liver is reduced in size and weight. The spleen is enlarged. The kidneys undergo degeneration. The blood contains a large amount of urea and considerable leucin. The urine is loaded with bile pigment, and contains albumin.

SYMPTOMS.—Prodromic period; begins as a gastro-intestinal catarrh, coated tongue, nausea, vomiting, tenderness over the epigastrium, headache, quickened pulse, slight fever, and slight jaundice.

Icteric period; jaundice deepens, pulse slow, headache increases, and great and obstinate sleeplessness.

Toxæmic period; fever, rapid pulse, more complete jaundice, pain, nausea, vomiting of blackish, grumous blood, or "coffee grouuds," tarry stools, ecchymotic patches, convulsions or epileptiform attacks, coma, insensibility, death.

Percussion shows markedly decreased hepatic dullness.

DURATION.—Short. After appearance of jaundice, about six days.

PROGNOSIS.—Unfavorable.

TREATMENT.—Drug treatment symptomatic. Bovinine is the tonic and food par excellent in the treatment of this condition. It should be given in from five drops to a wine-glassful from every hour to four hours, as indicated.

SCHLEROSIS OF THE LIVER.

SYNONYMS.—Intestinal hepatitis; cirrhosis of the liver; hobnailed liver; gin-drinker's liver.

DEFINITION.—An inflammation of the intervening connective tissue of the liver, chronic in prognosis, resulting in an induration or hardening of the organ and an atrophy of the secreting cells; characterized by gastro-intestinal catarrh, slight jaundice and ascitis.

CAUSES.—The prolonged use of alcoholic stimulants, gin, whiskey, beer, or porter; syphilis.

PATHOLOGICAL ANATOMY.—First stage: hyperæmia of the connective tissue (Glisson's capsule) of the liver, and the development of brownish-red connective-tissue elements, whereby the organ is increased in size and density; this increase of the connective-tissue presses upon the hepatic cells, causing them to undergo fatty degeneration.

Second stage: the newly formed, imperfectively developed connective tissue contracts, causing decrease in the size and induration of the organ, its surface being nodulated. The hepatic and portal circulation is obstructed, from obliteration of their radicles.

The hepatic peritoneum is thickened and opaque, and adhesions are formed to the diaphragm, gall-bladder and stomach.

Cases occur in which schlerosis takes place while the organ continues enlarged; these cases are known as hypertrophic schlerosis.

SYMPTOMS.—No characteristic symptom of the early stage of the affection. Persistent gastro-intestinal catarrh, with attacks of jaundice in a drinking man, are suspicious. Symptoms of the second stage are, abdominal dropsy, enlargement of the superficial abdominal veins, dyspepsia, localized peritoneal pain, hemorrhages from the stomach or intestines, muddy or slightly jaundiced skin and decided

emaciation; the enormously distended abdomen with thin legs are characteristic of schlerosis of the liver.

Diagnosis.—Atrophy of the liver, or the nutmeg liver, is almost always confounded with schlerosis, the former occurs most commonly with obstructive diseases of the heart and lungs, and the surface of the organ is not nodulated, nor is there a history of alcoholism.

Cancer and tubercle of the peritoneum have many symptoms akin to sclerosis. The points of differentiation are, great tenderness over the abdomen, rapidly developed ascites, rapid decline in strength and flesh, absence of jaundice, absence of long-continued dyspepsia, absence of hepatic changes on percussion, and the presence of tubercle or cancer deposits in other organs.

Prognosis.—Terminates in death. Average duration after appearance of the dropsy, one year.

Treatment.—Drug treatment symptomatic. Bovinine internally probably affects a greater improvement in the treatment of this condition than any other tonic treatment employed. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

AMYLOID LIVER.

Synonyms.—Waxy liver; lardaceous liver; scrofulous liver; albuminous liver.

Definition.—A peculiar infiltration into, or a degeneration of, the structure of the liver, from the deposit of an albuminoid material, which has been termed amyloid, from a superficial resemblance to starch granules.

Causes.—The chief cause is prolonged supperation, especially of the bones; coxalgia, syphilis, cancer.

Pathological Anatomy.—The liver is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistency. On section, the surface is homogeneous, is anæmic and whitish. The deposit begins in the arterioles and capillaries, finally closing them.

The reaction with iodine and sulpheric acid affords a certain test of the amyloid or albuminoid deposits. After further cleansing, brush over the parts a solution of iodine with iodide of potassium in water, when they will assume

a mahogany color, and if diluted sulphuric acid be added, a violet or bluish tint is produced.

A pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color, with the amyloid or albuminoid material, while the unaltered tissues are stained blue, thus showing a beautiful contrast.

The amyloid change involves the spleen, kidneys, intestines, and their organs.

Symptoms.—Nothing characteristic. Hepatic dullness increased with prominence over the liver, absence of pain, spleenic dullness increased. Emaciation and anæmia. Urine increased in amount, pale, and containing some albumin, due to amyloid changes in the kidneys. Disorders of digestion, with diarrhœa, due to amyloid changes in the intestines. Jaundice is rare. Ascites seldom occurs.

Prognosis.—Unfavorable. The progress is rapid or slow, depending upon the case.

Treatment.—Drug treatment symptomatic. Bovinine given in doses ranging from five drops to a wine-glassful from every hour to every four hours, according to the age and condition of the patient and continued indefinitely; while no absolute cures have been recorded, great improvement has resulted where Bovinine was employed.

HEPATIC CANCER.

Synonym.—Carcinoma of the liver.

Definition.—A peculiar morbid growth, progressively destroying the hepatic tissue; characterized by disorders of digestion, anæmie, emaciation, jaundice and ascites, terminating in the death of the patient.

Causes.—Hereditary, when it is termed primary cancer; from extension from other organs, when it is termed secondary cancer. It is a disease of advanced life, from forty to sixty years.

Pathological Anatomy.—The most common variety of cancer of the liver is a compound of the medullary and scirrhus.

The cancer cells develop from the interlobular connective tissue; and as they grow the hepatic cells atrophy, the result of the pressure of the new growth. The branches of the hepatic artery enlarge and permeate the growth.

while the branches of the portal vein are compressed and atrophied, thereby blocking up the portal circulation.

The cancer may develop in nodules or masses, or may be diffused; the nodules vary in size, and those on the surface are rounded, with a central umbilication. The peritoneum is adherent, cloudy and thickened.

Symptoms.—The development of hepatic cancer is preceded by a history of dyspepsia, flatulency and constipation. The uneasiness, weight, and pain, increased by pressure, are noticed; jaundice, ascites, occasional intestinal hemorrhages, emaciation, feebleness, anæmia, cold, dry, harsh skin, pinched features, with dejected, worn expression. Fever never occurs. The hepatic dullness is increased, with pains on palpitation, and the liver is indurated, irregular and nodulated.

The duration is less than a year from the time the disease is recognized.

Diagnosis.—The points of differentiation are the age, cachexia, pain and tenderness, enlarged liver with hard nodules, and rapid progress.

Prognosis.—Always terminates in death.

Treatment.—Drug treatment symptomatic. As a tonic and food Bovinine stands alone. While no cures have been reported, life has been prolonged and suffering lessened. It should be given in doses ranging from five drops to a wine-glassful, according to the age and condition of the patient.

DISEASES OF THE KIDNEYS.

THE URINE.

The normal quantity of urine varies from twenty to fifty ounces in the twenty-four hours. It is decreased by free perspiration and increased by chilling of the skin.

The normal color is light amber, due to urabilin; the color deepens if the quantity voided be decreased, and vice-versa.

The normal reaction is slightly acid, due to the acid sodic phosphate, uric and hippuric acids. After meals it may be neutral or even alkaline.

The normal specific gravity varies from 1.008 to 1.020; it is low when an increased quantity is passed and high when the quantity is diminished.

The most important organic and inorganic constituents held in solution are, urea (the index of nitrogenous excretion), from 308 to 617 grains daily; uric acid, from 6 to 12 grains; urates of sodium, ammonium, potassium, calcium, and magnesium, from 9 to 14 grains; phosphates of sodium, etc., from 12 to 45 grains, and chlorides of sodium, etc., from 154 to 247 grains daily.

CONGESTION OF THE KIDNEYS.

Synonyms.—Renal hyperæmia; catarrhal nephritis.

Definition.—An increase in the amount of blood in the vessels of the kidneys; when arterial, it is termed active congestion; when venous, passive congestion; characterized by pain, frequent desire for urination, the amount of urine scanty, high-colored, occasionally containing albumin or blood.

Causes.—Active; from cold; irritating substances eliminated by the kidneys, to-wit: turpentine, copaiba, cantharides; during the eruptive or continued fevers; injuries over the kidneys.

Passive; obstructive diseases of the heart or lungs, and pressure of the pregnant uterus.

Pathological Anatomy.—The kidneys enlarge and increase in weight; increased redness (the color being bluish if passive), with points of vascularity, corresponding to the Malpighian bodies, and occasionally minute ecchymoses. The abnormal hyperæmia causes a catarrhal state of the ducts of the pyramids, with shedding of their epithelium.

If mechanical (passive) obstruction continue for some time, increase of the connective tissue, with consequent induration and contraction, results, or a form of chronic Bright's disease.

Symptoms.—Active variety; pain over kidneys and following the course of the ureters into the testicles and penis, irritable bladder, almost constant and pressing desire for urination, the urine scanty, high-colored, and occasionally bloody, with fibrin, casts and albumin; there is, as a rule, no pain during the act of urination. The constitutional symptoms are headache, slight nausea, vomiting, and general feeling of discomfort.

If the condition persist, inflammation of the kidney results.

Passive; the kidney changes are marked by the lung or heart trouble, until dropsy, scanty, high-colored, albuminous urine is observed.

PROGNOSIS.—Active; if recognized and properly treated, favorable.

Passive; controlled by the cause, and if prolonged, terminating in interstitial nephritis.

TREATMENT.—Drug treatment as indicated. Bovinine should be employed from the onset and continued for at least two weeks after cessation of all symptoms. It should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient

GENERAL TREATMENT OF THE VARIOUS FORMS OF "BRIGHT'S DISEASE."

It is to be borne in mind that the course of a case of chronic Bright's disease is not continuously downward. Periods of remission often follow the most aggravated symptoms; the patient and his friends being buoyed up by the hope of an early and complete recovery, when, as suddenly, an attack of acute uræmia terminates life. Rest and diet are the most important elements in the treatment. To eliminate the uric acid, diaphoretics and diuretics should be given with care and discretion. Alcoholic stimulation should be avoided. A patient with this disease should, as far as possible, be relieved from all cares of business, and spend a goodly portion of time in bed. Great care should be taken to avoid catching cold. The diet should consist of something that will thoroughly nourish the patient and, at the same time, give the stomach rest. A large experience in the treatment of these cases has convinced me that Bovinine is the remedy *par excellence*. It not only supplies to the system every element of nutrition, requiring little or no digestion, but checks the waste of albumen, and prevents the overgrowth of the connective tissue, thereby aiding the kidney to assume the normal, as nothing else will do. It should be given in doses from ten drops to a wineglassful in milk, from

one hour to three hours apart, according to the age of the patient and the severity of the case.

CHRONIC BRIGHT'S DISEASE.

By Dr. M——, New York.

Mr. W——; American; merchant; presented on April 20th, 1897; a fully-developed case of Bright's disease; a well-defined interstitial nephritis, with hypertrophy of the left side of the heart, gastro-intestinal disorders, and a loss of 50 pounds in six months, during which his urine almost constantly bore a half of 1 per cent. albumen. Being a man of means, everything heretofore possible had been done for him. He had used many of the best-known lithia waters, together with the most advanced treatment employed by the medical authorities of the world. The result of all this was so far from satisfactory that when taken in hand by the writer, on April 20th, his urine contained 1 per cent. of albumen, and granular casts in large quantity. I was thoroughly discouraged with the prognosis, and so intimated to the patient's family.

It came to me through a medical brother that Bovinine had been applied with excellent effects in various types of wasting disease, and, after consulting Dr. B——, I determined on a trial in this desperate case. A teaspoonful of Bovinine in sterilized milk, also plain lithia water, was given every two hours. Being beautifully retained by the stomach, it was thus continued for a week, and then the bi-hourly dose was increased to a tablespoonful. After the second week it was increased to a wine-glassful every three hours; medicine having been entirely discarded, except an occasional dose of nitrate of strychnine and nitro-glycerine

May 10th, the urine contained barely a trace of albumen and few casts.

May 18th, the albumen had entirely disappeared, and the patient found himself feeling better than at any time since the disease began.

May 22nd, still no albumen, and feeling well. This rapid and pronounced improvement is probably unprecedented in an advanced case, and a case so aggravated as this, in which all the rescources of the most advanced treatment hitherto known had proved abortive to so much

as check the steady progress of the disease from worse to worse; whereas immediately on the second day of Bovinine treatment the patient began to feel a perceptible improvement in vigour, which continued to increase from day to day to the present.

CHRONIC BRIGHT'S DISEASE.

By Dr. T. J. Biggs, Sound View Hospital,

Siegfried H——, Portchester, N. Y.; Swede; age 39; diagnosis, chronic parenchymatous nephritis; first seen December 19th, 1898. Patient said she had been sick for over a year, and during that time had been under treatment by ten different physicians, but had received no benefit. Some told her she had consumption, and some chronic dyspepsia. A careful study of the case elicited the following history: The onset of the disease was gradual and insidious. The first she noticed was swelling of the feet, which gradually extended all over the body, causing profound dyspnœa. She became pale, debilitated, and suffered from cardiac palpitation, vomiting, headache, vertigo and defective vision. The urine was scanty, high colored, albuminous, and under the microscope showed hyaline and granular tube casts, granular epithelium, fatty tube casts, and oil globules. An irritable bladder was a constant symptom. Anæmia was pronounced, from the large waste of albumen. Gastro-intestinal disorders and vague neuralgic pains were also constant symptoms. There was also cardiac hypertrophy, bronchial catarrh, and slight œdema of the larnyx, causing a husky voice. Partial amaurosis, the result of neuro-retinitis. Based on these symptoms, I made the diagnosis of chronic Bright's disease, and pursued the following course of treatment: Absolute rest was insisted upon, and for the first two days the patient was put on a tablet of Schering's urotropin in a glass of hot water three times a day, and one-sixth grain of calomel every two hours. At the end of two days, the calomel was discontinued, the urotropin was given twice a day, night and morning, and twenty drops of Bovinine in lime water and milk every half hour; no other food being allowed. At the end of three days the quantity of Bovinine was increased to a teaspoonful every hour; this was continued up to January 1st, when the quantity of

Bovinine was increased to two teaspoonfuls every hour. On January 7th, the Bovinine was increased to a tablespoonful every two hours. Up to this time the patient had taken absolutely nothing by way of nourishment but Bovinine and milk. Her condition, notwithstanding, was so much improved that a general light diet was allowed. At this time the urine showed a decided decrease in quantity of albumen and tube casts, the dropsy had almost entirely disappeared, the dyspnœa was lessened, and the sight decidedly improved. January 15th the Bovinine was increased to a wine-glassful every three hours. From this time on the patient's improvement was rapid. February 1st, 1899, she was discharged, practically well. The urine was normal, the cardiac condition, except the hypertrophy, was almost normal, and the dropsy had entirely disappeared, as well as the dyspeptic symptoms; sight was entirely restored. She had gained 12½ pounds in weight.

CASE OF PURULENT NEPHRITIS.

By. Dr. T. J. Biggs, Sound View Hospital.

Henry K——, Springdale, Conn.; age 40; February 27th, 1899; diagnosis, pyelo-nephritis. Was called to see the case with Dr. B——. Patient had just had a severe chill, and was suffering from a high fever; severe lumbar pains, following the course of the ureters; frequent micturition, the urine milky in appearance, neutral in reaction and depositing a copious yellowish-white sediment, a small amount of albumen and considerable pus. Patient was put on a Bovinine diet, a teaspoonful in milk every two hours, with large quantities of lithia water; the improvement was almost immediate; at the end of forty-eight hours the fever had disappeared, and the urine had cleared up. March 2nd, the Bovinine was increased to a tablespoonful every two hours.

Examination of urine at this time showed (outside of a trace of pus) an almost normal standard. March 12th, Bovinine was increased to a wine-glassful in milk every two hours. March 16th, the patient was discharged cured, having lived entirely on Bovinine and milk during the course of his sickness.

RENAL CALCULI, CHRONIC CYSTITIS, HYPERTROPHIED PROSTATE.

By Dr. T. J. Biggs, Sound View Hospital.

Frank Jones; age 51; December 20th, 1897; chronic cystitis, renal calculi; intense irritation of the bladder, which troubled him so severely that he had been reduced almost to a skeleton; prostate tremendously hypertrophied, a membranous stricture; right kidney enlarged. The stricture I divided, cleansed, sterilized and deoxidized the bladder, and injected Bovinine-salt solution into the bladder. This treatment was repeated daily until the 29th, when the stricture had healed and the cystitis was greatly relieved.

The operation for removal of renal calculi, and treatment of the prostatic condition, were deferred for the present.

CHRONIC PARANCHYMATOUS NEPHRITIS: HEPATIC AND GENERAL FATTY DEGENERATION.

By Dr. T. J. Biggs, Sound View Hospital.

David J——, Stamford; age 70; January 26th, 1898. This patient was almost helpless when carried into the hospital. His legs were abnormally large from excessive œdema, resulting from the hepatic degeneration. The stomach was tremendously enlarged, the heart also was enormously hypertrophied and its action much disturbed; there was systolic mitral insufficiency; the whole complicated with occasional attacks of angina pectoris. Had been constantly under treatment for twelve years, with little or no relief.

January 27th, he was put on a drachm of Bovinine in milk and lime water, every three hours, with regulative medicines, and bandaging of legs. The most marked improvement followed; the œdema rapidly disappeared; the heart action was greatly improved; and by the 10th of February blood and urine showed decided improvement; arrest at the source of fatty degeneration; albumen disappearing; the proportion of red cells to white being thirty to one, and the red cells having risen in number to two-thirds of normal, with a marked improvement in general condition corresponding. The manifest operation of the Bovinine had been to set up healthy proliferation and

nutrition of red cells, and thus nourishing healthy tissue, to prevent the abnormal deposition of fat in its place. In a case so exhausted of vitality by long disease and old age, this phenomenon is certainly remarkable, and of great interest to physicians.

February 23rd, the patient left the hospital on foot, with but half of 1 per cent. albumen in his urine, and no fatty cells, by microscopical examination, a good allowance of red blood cells and hæmaglobin, for his age, and feeling well. When last seen in March his improvement was confirmed, continuous and complete.

TUBERCULAR NEPHRITIS—OPERATION.

By Dr. T. J. Biggs, Sound View Hospital.

T—— H——, Springdale, Conn.; age 12; April 15th, 1898; temperature, 100.5; had lost flesh rapidly; suffered great pain in the right kidney; passed large quantities of light urine, in which some blood was occasionally present, with numerous tube casts and tubercle bacilli. I put the patient on Bovinine every two hours, with suitable medicines, under which he showed some improvement, after which the pain and previous condition returned. Consequently, after a day of preparatory treatment, was operated on, May 1st. An exploratory incision was made posteriorly, and the kidney was brought to the surface of the wound. It was found tremendously congested, and presenting the appearance of a well-defined case of renal tuberculosis. So thoroughly was the kidney involved, that on account of the child's weakened condition I deemed it unwise to allow it to remain, and therefore removed it. Bovinine was applied four times a day to the stump of the kidney, through the drainage tube. On May 27th, 1898, the patient was discharged cured. The rapidity with which the condition in this case was healed is undoubtedly due to Bovinine, and a parallel to it I do not know.

PARENCHYMATOUS NEPHRITIS IN INFANCY.

By Dr. T. J. Biggs, Sound View Hospital.

Clara T——, New York; age 3½; June 6th, 1898. Within six months after her birth, this child had begun to show evidences of kidney trouble, and, in spite of medical advice, for the next two years led a miserable existence, sick all the time.

The little patient was now put on ten drops of Bovinine in boiled milk, every two hours, and nothing else. At the end of a week, the Bovinine was increased to half a teaspoonful every three hours. This was continued until July 20th, and was then increased to a teaspoonful. Examination of urine now showed no albumen where at first there had been over 2 per cent. present; no tubular casts nor granular cells; nor any remaining soreness of kidneys. August 30th, the urine was normal in both quantity and quality, and the general condition was that of health. September 1st, patient was discharged. She had entered an emaciated, restless, lifeless, miserable object; departed, five or six pounds heavier, round, rosy, full of spirits, life and fun.

CHRONIC INTERSTITIAL NEPHRITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Walter B——, Huntington, Long Island, N. Y.; age 37; July 7th, 1898; had been treated four months for chronic dyspepsia; examination now revealed hypertrophy of left side of heart; urine showed almost 2 per cent. of albumen, with tubular and granular casts; was voiding large quantities of urine; and was much emaciated and run down generally. Ordered to bed, and put on medical and Bovinine treatment. In a single week, the condition was much improved; albumen of urine reduced to half of 1 per cent.; second week, only a trace of albumen could be found; August 8th, not the slightest trace of albumen was discoverable; all the general symptoms had disappeared, except the enlargement of heart; color much improved. and weight increased by six pounds. He thought he had entirely recovered.

CHRONIC CYSTITIS.

By Dr. T. J. Biggs, Sound View Hospital.

John R——, Stamford, Conn.; aged 50; March 6th, 1899; diagnosis, Cystitis. Patient had suffered from this condition for several years, one of which was spent in a large New York hospital, but little or no benefit derived. The symptoms presented when he first came were: dull pain; frequent but scanty micturition; examination of urine showed it to be alkaline, containing large amounts of muco-pus; on standing, it deposited a thick, glairy, viscid

sediment, which under the microscope showed triple phosphates and large pus corpuscles. Immediately after micturition, several ounces of fetid, cloudy, alkaline urine could be removed. Patient presented decided constitutional debility, and occasional bloody urine indicated ulceration of the vesical mucous membrane, but as yet no hypertrophy of the bladder could be detected. On account of the vesical ulceration, I determined to treat the patient both locally and internally. He was put to bed, and a Bovinine and milk diet prescribed, also large quantities of lithia water. Every other day the bladder was washed out with a weak Thiersch solution, followed by a Thiersch-Bovinine injection. Internally he was given a wine-glassful of Bovinine in milk every two hours.

He began to show improvement after the first week; pain was less; urine less frequent and more in quantity; and he slept well. March 18th, the Thiersch-Bovinine injections were employed once in twenty-four hours. March 28th, patient was entirely free from pain, had gained five pounds in weight, slept well, and was perfectly nourished, in spite of the fact that he had taken nothing but Bovinine and milk. April 8th, he was discharged.

CHRONIC CYSTITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Hugh O'Neil, Greenwich, Conn.; age 34: July 30th, 1898; had suffered greatly for three and a-half years with cramps and burning, with constant desire to urinate, resulting from chronic cystitis. I began on him by washing out the bladder with a weak Thiersch solution twice a day, followed by injection into the bladder of two drachms Bovinine and salt water. The first three or four applications were quite painful, but the rest the patient said were very grateful. September 5th, microscopic examination of urine and cystoscopic examination of bladder showed the condition entirely relieved, and the patient was discharged.

DIABETES MELLITUS.

By Dr. T. J. Biggs, Sound View Hospital.

Synonyms.—Glycosuria; mellituria.

Definition.—A chronic affection, characterized by the constant presence of grape sugar in the urine, and exces-

sive urinary discharge, and a progressive loss of flesh and strength.

CAUSES.—Most common in males; occurs at all ages, but most frequently between twenty-five and fifty years; it is often hereditary; excessive use of farinaceous food and malt liquors; sexual excesses. The exact pathology of diabetes mellitus differs in different cases, and in the present state of our knowledge no exclusive view can be adopted. Still there are reasons for believing that in a large proportion of cases, the nervous system is primarily at fault, though the character of the lesions may vary.

Hyperæmia, and hypertrophy of the liver and kidneys, are generally present, the result of increased functional activity.

The changes in the lungs peculiar to phthisis are often found in very chronic cases.

GENERAL TREATMENT OF DIABETES.

Impress upon patient the importance of a strictly regulated diet; prohibit the consumption of such articles as contain sugar or starch, especially ordinary bread or flour, sugar, honey, potatoes, peas, beans, rice arrowroot, cracked wheat, oatmeal, turnips, beats, corn, carrots, fruits and liquors of all kinds, whether distilled or fermented.

The diet should be principally animal food, a moderate amount of fluid should be allowed. Saccharin should be used as a substitute for sugar. Regulated exercise is of importance. The patient should wear flannel, and have two three warm baths every week, or an occasional Turkish bath. My experience shows that the only rational treatment, and one that promises success in a fair number of cases, is as follows:

From ten drops to a wine-glassful of Bovinine in boiled milk, administered from once an hour to once every three hours, according to age of patient and the severity of the disease; also dilute hydrochloric acid and sulphate of strychnine three times a day—this acts by decreasing the hyperæmia and hypertrophy of the liver and kidneys, thereby lessening their functional activity; the nervous system also gradually resuming its normal state. This course of treatment has been, in my hands, successful in no less than eight cases.

While it is true that the most learned physiologists differ as to the causes of this very distressing disease, it is conceded that the element of nutrition is the all-important factor in its treatment.

Bovinine possesses in a very marked degree all the elements needed in the reparative process of an organism suffering from this disease, being rich in the vital and nitrogenous elements that go to repair the waste and debility of the nervous system; it is also practically in the condition of assimilation; and is devoid of all the elements of starch or sugar.

DIABETES.

By Dr. T. J. BIGGS, Sound View Hospital.

John P——, Glenbrook, Conn.; diabetes insipidus; age 36: January 2nd, 1898; great thirst; increased flow of pale, watery, slightly acid urine, averaging about four gallons in twenty-four hours, specific gravity from 1.002 to 1.007; urea and other solids greatly increased; sugar and albumen present; appetite voracious, bowels obstinately constipated, and the skin dry and harsh. The large flow of urine was preceded by various nervous phenomena, such as irritability, inability to concentrate the mind, vivid imagination, failure of memory, and headache. Had lost much flesh, and was weak and debilitated. Inquiry elicited a history of acquired syphilis. He had been under the treatment for over a year, but in spite of all treatments, including an anti-syphilitic, had grown steadily worse. From past experience in the treatment of this condition I was convinced that Bovinine was exactly indicated, and commenced giving him a teaspoonful in lithia water every hour, alternating with milk and Bovinine. I gave him one-quarter grain proto-iodide of mercury every three hours, and a carthartic each morning before breakfast. No other nourishment but the Bovinine was allowed. January 6th the Bovinine was increased to three teaspoonfuls every two hours; January 12th it was increased to a tablespoonful every two hours; January 22nd it was increased to a wine-glassful every three hours. The patient at this time was greatly improved; quantity of urine decreased to one gallon in twenty-four hours; urea and other solids much diminished; bowels normal and skin moist. Nervous phenomena greatly lessened; appetite, though large, was about normal. Up to this time,

the patient had taken no other nourishment than Bovinine and milk. February 1st, his condition had further improved, having gained considerably in weight. He was anxious to resume his work, having been absent from it for nearly two years; and on February 10th he went back to work. February 12th, except a little nervousness, his condition was normal—was discharged with instructions to continue the Bovinine and report every two weeks.

DIABETES CASES.

By Dr. CLARKE, Milford, Mass.

I used the Bovinine treatment in four cases of diabetes, with fine results. Under the best diabetic diet they were making no progress, but with the addition of Bovinine, a radical change for the better took place. I heard of its use in this condition from Mr. Edward Thayer, of Newtonville.

DIABETES MELLITUS.

By Dr. D. W. SHOWALTER, Springfield, Ohio.

Several months since I made use of the Bovinine treatment, though rather tardily, upon a patient of mine, aged 83, who was a sufferer from Diabetes Mellitus. He is a patient of State I. O. O. F. Home, where I am house physician. I tried several beef preparations, also malted milk, without success, and had about given up all hope of affording the patient relief, when, as a last resort, I persuaded him to try Bovinine, and, to my delight, its effects were something marvellous. I have had him use several bottles, and now for the past month he is able to be up and about. Whenever any distress arises in the stomach, he resorts to Bovinine, with most gratifying effect. I most heartily endorse Bovinine as the ideal preparation for weakened and diseased stomachs.

ACUTE BRIGHT'S DISEASE.

SYNONYMS.—Acute desquamative nephritis; acute parenchymatous nephritis; acute tubal nephritis.

DEFINITION.—An acute inflammation of the epithelium of the uriniferous tubules; characterized by fever, scanty, high-colored or smoky urine, dropsy, with more or less constant nervous phenomena, the result of acute uræmia.

CAUSES.—The young more liable than the aged; cold and exposure; scarlatina; persistent use of irritants, to-wit: Turpentine and cantharides. Blows and injuries of the back have caused this affection.

PATHOLOGICAL ANATOMY.—The kidneys are generally swollen, engorged, more vascular, and of a red color; in the second stage the organ remains large, irregularly red, especially the cortex; the tubules are engorged and filled with epithelium, blood corpuscles and fibrin. The capsule is easily detached, and is more opaque than normal.

If a favorable termination, the swelling lessens, the vascularity diminishes, the tubules returning to a normal condition.

SYMPTOMS.—Usually begins suddenly. Fever, with nausea, and violent and persistent vomiting, dull pain over the kidneys, following the ureters; frequent desire to urinate; diarrhœa; skin harsh and dry, pulse quick, tense and full. Soon dropsy appears, the eyelids and face become puffy and swollen, followed by general œdema of the extremities, scrotum and abdominal walls. If the attack follow scarlatina, there are from the onset much greater pallor and general debility.

The urine is of high specific gravity, scanty, smoky (like beef washings) in color, due to the presence of blood. Albumin is present in large quantities, and the microscope reveals casts of the uriniferous tubules, blood corpuscles, uric acid, urates and oxalate crystals and epithelium.

Duration from one to four weeks.

COMPLICATIONS. — Pericarditis, pleuritis, pneumonitis, peritonitis, or acute uræmia, from retention and decomposition of urea in the blood.

DIAGNOSIS.—The history, fever, scanty, smoky, albuminous urine, with dropsy beginning in the face, should prevent any error.

Albuminuria may be confounded, on account of the presence of albumin in the urine, but lacks the clinical history, usually occurring in the course of some constitutional affection, to-wit: Diphtheria, cholera, yellow fever or erysipelas.

PROGNOSIS.—Favorable. Majority of cases recover under prompt treatment. Rarely passes into chronic Bright's disease. Uræmic symptoms add to the gravity of the prognosis.

TREATMENT. — Drug treatment symptomatic. Bovinine employed from the onset in this condition will undoubtedly prevent serious pathological changes, and as a food it is par excellent. It should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, as indicated.

CHRONIC PARENCHYMATOUS NEPHRITIS.

SYNONYMS. — Chronic Bright's disease; chronic tubal nephritis; chronic albuminuria; large white kidney.

DEFINITION.—A chronic inflammation of the cortical and tubular structure of the kidneys; characterized by albuminous urine, dropsy, increasing anæmia, with attacks of acute uræmia.

CAUSES.—Occasionally follows the acute form; syphilis; chronic malaria; chronic alcoholism; chronic mercurialism; lead poisoning; protracted suppuration; some undetermined nervous condition.

It is a disease of the young, rarely occurring after forty.

PATHOLOGICAL ANATOMY.—A large white, or yellowish-white, smooth kidney, often twice the normal size. The capsule is nowhere adherent to the organ. Upon section, considerable tumefaction of the cortical substance and the rarity of vascular striæ are recognized. The medullary substance shows no appreciable alteration, its color being normal. The convoluted tubes are irregularly dilated and thickened, and filled with broken-down, granulated epithelium and fibrinous casts. In pronounced cases there is fatty degeneration of the tubular epithelium.

SYMPTOMS.—The onset is gradual and insidious, and the affection is seldom recognized until the appearance of dropsy, which, beginning under the eyes and in the face, extends all over the body, causing dyspnœa from ascites or hydrothorax, although in many cases the dropsy is a late symptom, the patient becoming pale, debilitated and suffering from cardiac palpitation, increasing dyspnœa, and vomiting, all gradually developing without apparent cause; also headache, vertigo and defective vision. The urine is scanty, high-colored, albuminous, and under the microscope showing hyaline and granular tube casts, granular epithelium, and if fatty degeneration occur, fatty tube casts and oil globules. The increase above the normal

amount of the urine as the disease progresses must not be forgotten, when the specific gravity is low, 1.010-1.015, and the quantity of albumin is increased. Irritable bladder is a very constant symptom.

Anæmia is pronounced, from the large waste of albumin. Gastro-intestinal disorders and vague neuralgic pains are common occurrences. Cardiac hypertrophy is of common occurrence. Bronchial catarrh, with slight œdema of the larynx, causing husky voice, are frequent complications. Amaurosis, the result of neuro-retinitis occurs in a greater or less degree in all pronounced cases. Uræmic symptoms occur, and especially uræmic asthma (renal asthma).

Complications.—Pneumonia, pleuritis, pericarditis, peritonitis, meningitis, and cardiac hypertrophy.

Prognosis.—Not unfavorable, unless urine persistently contains a large number of fatty tube casts and oil globules. Relapses are frequent, but many complete (?) recoveries are recorded. I have seen four apparent recoveries, one after twelve months' duration, another after two years' duration, and still another after five years' duration.

Treatment.—Drug treatment symptomatic. Bovinine begun in the early stages of this condition will, indirectly, through its power to build up the system, bring the blood to its normal standard, and if not cure, greatly improve the condition, thereby prolonging the patient's life. It should be given indefinitely in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

INTERSTITIAL NEPHRITIS.

Synonyms.—Chronic Bright's disease; sclerosis of the kidneys; contracted kidneys; small red kidney; gouty kidney.

Definition.—An inflammation of the intervening connective tissue of the kidney, chronic in its progress, resulting in an induration or hardening, with contraction of the organ; characterized by frequent passing of large amounts of pale, albuminous urine, of low specific gravity, disorders of the gastro-intestinal tract and nervous systems, a strong tendency to cardiac hypertrophy and changes in the vessels.

Causes.—A disease of middle life, from forty to sixty years. Gout a very common cause; lead cachexia; syphilis; alcoholism; long-continued worry, anxiety or grief; alterations in the renal ganglionic centres (Da Costa and Longstreth).

Pathological Anatomy.—The kidneys are reduced in size. The capsule is thickened, opaque and adherent. The surface of the kidney is granular, with cysts of various sizes, of transparent color, irregularly over the surface. On section the tissue of the kidney is tough and resistant. The cortical portion is thin, from atrophy, being only a line or two in thickness. The connective tissue is greatly thickened, compressing the tubules into mere threads, the glomeruli being grouped together in bunches, owing to the wasting of the intermediate tubes. The color varies, from a darkish-brown to a yellowish-gray, according to the amount of blood in the organ.

The left side of the heart is hypertrophied, and there is also hypertrophy of the muscular fibre of the arterioles throughout the body; if the case is protracted, the hypertrophied tissues undergo fatty degeneration.

In many cases there occur fatty degeneration of the retinal tissues, or sclerosis of the nerve-fibre layer, changes which are termed retinitis albuminuria.

Apoplexy is a frequent termination of interstitial nephritis, the rupture of a cerebral vessel suggesting it to be a disease of degeneration.

Symptoms.—Onset insidious, and often marked alterations in the kidneys, heart and vessels have occurred before the disease is recognized. There are no characteristic early symptoms in the majority of cases, the disease being apparently latent, until some special outbreak cause a more thorough examination of patient, when he is found to have an interstitial nephritis.

Any of the following symptoms may first attract attention, to-wit: Frequent micturition, increased amount of urine of a pale color, containing a small amount of albumin, which may be absent for days, occasional epithelial cells and hyaline casts. No dropsy, but a little puffiness and œdema of the conjunctiva—the Bright's eye. Disorders of vision. Forcible cardiac action, with high arterial tension. And any of the following symptoms, the

result of uræmia: Persistent dyspepsia, occasionally vomiting, regardless of food; headache, vertigo and stupor or drowsiness; violent itching of the skin; tremors, convulsions, epileptic seizures, or apoplectic attacks.

The body weight declines, the skin is dry and scurfy, the strength fails, and shortness of breath on exertion is present.

The termination is usually by convulsions, coma and death.

Complications.—Bronchitis; pneumonia; pleuritis; pericarditis; cardiac hypertrophy.

Diagnosis.—Differs from parenchymatous nephritis in the following: Large quantities of urine, clear, of a low specific gravity, small amount of albumin, with a few hyaline casts, the hypetrophied heart and tense arteries and marked disorders of vision.

Prognosis.—Pursues a very chronic course; cases recorded under observation eleven years; but the termination is always fatal.

Treatment. — Drug treatment as indicated. Bovinine begun in the early stages of this condition will, indirectly, through its power to build up the system, bring the blood back to its normal standard, and if not cure, greatly improve the condition, thereby prolonging the patient's life indefinitely. It should be given indefinitely in doses ranging from five drops to a wineglassful, from every hour to four hours, as indicated.

AMYLOID KIDNEY.

Synonyms.—Chronic Bright's disease: waxy kidney; lardaceous kidney.

Definition.—A peculiar infiltration into, or a degeneration of, the structure of the kidney, from the deposit of an albuminoid material, having a superficial resemblance to starch granules. Similar changes occur in the liver, spleen, intestines, and other organs.

Causes.—The chief cause is prolonged suppuration, especially of the bones; coxalgia; syphilis; cancer.

Pathological Anatomy.—The kidney is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistency. On section, the surface is homogeneous, anæmic and whitish. The deposit

occurs along the renal vessels and in the vascular tufts of the glomeruli, progressing until all parts of the organ are infiltrated. When the organ is thus infiltrated, the proper structure undergoes an atrophic degeneration, the result of pressure.

The reaction with iodine and sulphuric acid affords a certain test of the amyloid deposit. Brush over a section of the affected kidney a solution of iodine with iodide of potassium in water, when a mahogany color will be produced, and if diluted sulphuric acid is now added, a violet or bluish tint results. A very pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color with the amyloid material, while the unaltered tissues are stained blue, making a beautiful contrast.

Similar changes occur in other organs of the body. With the amyloid change may be associated either parenchymatous or interstitial nephritis.

Sypmtoms.—Associated with wasting are œdema of the lower extremities and ascites, with an increased flow of urine, pale, watery, and of low specific gravity, containing albumen and hyaline casts which are transparent. If the amyloid change be associated with other forms of renal change, the urine will show the characteristics of such condition. A profuse, watery and persistent diarrhœa adds to the suffering, caused by amyloid changes in the intestinal canal.

Diagnosis.—Differs from parenchymatous nephritis in its clinical history, and the fact of its always being associated with a suppurating disease.

From interstitial nephritis, in its history, character of the urine, absence of uræmia, cardiac hypertrophy, changes in the vessels, and the fact of its being associated with suppurating diseases and similar changes in other organs.

Prognosis.—Controlled by the suppurating disease with which it is associated; the termination, when the amyloid change is fully developed, is unfavorable, death occurring within a few months, or under favorable conditions, not for one or more years.

Treatment.—Drug treatment symptomatic; if Bovinine is begun before the amyloid change is fully developed, it will undoubtedly cure this condition, but if the amyloid

condition has been fully developed, it can do no more than prolong the patient's life; this it will do. It should be given in doses ranging from five drops to a wine-glassful from every hour to four hours, according to the age and condition of the patient.

PYELITIS.

SYNONYMS.—Suppurative nephritis; pyelo-nephritis.

DEFINITION.—An acute catarrhal inflammation of the pelvis of the kidney; the term pyelo-nephritis is used when suppurative inflammation is superadded to the catarrhal inflammation. The disease is characterized by lumbar pains, irritability of the bladder, the urine neutral, or alkaline in reaction, and milky in appearance; if pyelo-nephritis occur, symptoms of hectic fever and exhaustion are added, the urine containing pus.

CAUSES.—Cold, or exposure; cystitis; obstruction of the ureters by renal calculi; pressure from a tumor; abuse of certain drugs; rheumatism; sequelæ of infectious diseases.

PATHOLOGICAL ANATOMY.—The inflammation is catarrhal; it is characterized by injection of the mucous membrane of the pelvis of the kidney, with slight extravastions of blood: relaxation and softening, shedding of the epithelium, and the subsequent discharge of mucus and pus. If the morbid condition has exisited for some time, the kidneys, one or both, are in process of suppuration; they are enlarged, deeply congested, except where suppuration is proceeding, when they are of a yellowish-white color, pyelo-nephritis. Pus is constantly forming, and, if there be no obstructions, flows away with the urine; should there be an impediment to its escape, pus accumulates in the pelvis of the kidney, causing its distention, giving rise to the condition known as pyelo-nephritis. The pressure caused by the obstruction finally leads to destruction of the entire organ, a mere sac or renal cyst remaining.

SYMPTOMS.—If caused by cystitis, symptoms of this condition occur first; if from renal calculi, its characteristic symptoms precede those of pyelitis.

Begins by chilliness, feverishness, lumbar pains following the course of the ureters, frequent micturition, the urine milky in appearance when voided, acid or neutral in reaction, and depositing a copious sediment, whitish or yellow-

ish white in color, containing only a small amount of albumin, no more than is due to the pus.

Cases of pyelitis due to renal calculi frequently show hemorrhages; the bloody urine after some extra exertion.

If pylo-nephritis follow, symptoms of pyæmia supervene, to-wit: Fever, typhoid in character, low, muttering delirium, subsultus tendinum, stupor, decline in strength and loss of flesh, with perhaps a tumor in the lumbar region.

If both kidneys are affected uræmic symptoms are frequent.

Diagnosis.—From cystitis, by history, lumbar pains and acidity of purulent urine, the urine in cystitis being always alkaline. A microscopical examination of the urine will aid the diagnosis very much.

Peri-nephritis, a disease of loose tissue, around the kidneys, terminating in abscess, causing lumbar pain, increased by motion or pressure, hectic fever, sense of fluctuation over kidneys, the urine remaining normal.

Prognosis.—Simple cases, where there is no obstruction to flow of pus, recover in a week or ten days. If obstruction of the ureter, the prognosis is grave. Suppurative cases unfavorable.

Treatment.—Drug treatment symptomatic; surgical treatment as indicated. Bovinine should be employed indefinitely as a food and tonic in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

ACUTE URÆMIA.

Synonyms. — Uræmic poisoning; uræmic intoxication; uræmic coma; uræmic convulsions.

Definition.—A group of nervous phenomena, which occasionally develop during the course of acute or chronic Bright's disease, and other maladies, the result of the retention or accumulation in the blood of an excrementitious material, supposed to be urea; the flow of urine being either normal, lessened or increased.

Causes.—Suppression of urine, from acute or chronic Bright's disease; cystic, tubercular or cancerous kidney; the puerperal state; operations on the uterus, bladder, urethra or rectum.

SYMPTOMS.—Uræmic intoxication is the result of the failure of the kidneys to perform their normal function of eliminating some one or all of the poisonous elements of the urine.

The toxæmia may develop suddenly, by a convulsive seizure, followed by coma, or slowly and gradually. Usually the attack is preceded by a decrease in the urinary secretion; although it must be borne in mind that in rare instances, during, or immediately prior to, the appearance of the uræmic phenomena, the normal urinary flow has been largely exceeded.

The onset is usually with headache, dimness of vision, dilated, sluggish pupils, drowsiness, vertigo, deafness, dusky countenance, nausea, vomiting, and either a chill, followed by fever, or a cool skin from the onset; the mind is dull, deepening into stupor, to be followed by coma, or convulsions precede the coma, which terminates in death, unless the poison causing the attack is rapidly eliminated. If the amount of accumulated urea is small, the phenomena may not approach the pronounced coma described, the patient being able to be aroused. When convulsions occur, they rapidly succeed one another, consciousness seldom being complete between the fits.

DIAGNOSIS. — Cerebral apoplexy may be mistaken for uræmic coma, or the reverse. The chief points of distinction are, in the latter the attack is usually in patients suffering from dropsy, and that the coma is not sudden in its appearance, but is generally preceded by other nervous phenomena, such as headache, vertigo, dimness of vision, obstinate vomiting and convulsions. Again, the uræmic stertor is sharp, hissing sound, while that of apoplexy is "snoring."

Apoplexy is followed by paralysis, uræmic coma is not.

An epileptic seizure is preceded by the sharp cry and extreme pallor of the face, the countenance being dusky in uræmic convulsions.

PROGNOSIS.—An attack of acute uræmia is always a very grave condition. The prognosis depends upon the amount of retained poison, the length of time it has been retained, and the condition of the organs of elimination.

TREATMENT.—Drug treatment as indicated. Bovinine should be employed as the only food, and if necessary, should be given rectally. Small doses, often repeated, meet with best results.

RENAL CALCULI.

SYNONYMS.—Nephro-lithiasis; gravel; renal colic.

DEFINITION.—Renal calculi are concretions formed by the precipitation of certain substances from the urine, around some body or substance acting as a nucleus.

Their presence may not be recognized until one or more attempts to pass along the ureters, when an attack of renal colic results; or, by irritation, pyelitis is produced; or more rarely, they are voided by the urine without exciting any symptoms.

By gravel is meant small concretions, which are often passed in the urine in large numbers.

CAUSES.—Occur at all ages; frequent before the fifth year, and from five to fifteen. Males are more liable than females. A special liability seems to exist in some families, but the precise etiology of calculi is not yet determined.

VARIETIES.—1. Uric acid, as calculi and gravel, and especially associated with the gouty diathesis.

2. Urates, chiefly urate of ammonia; nearly always in childhood.

3. Oxalate of lime or mulberry calculus; characterized by hardness, roughness, and very dark color.

4. Phosphatic calculi form as frequently in the bladder as in the kidney, and present a chalky or earthy appearance.

5. Alternating calculi, consisting of alternate layers of two or more primary deposits.

ANATOMICAL CHARACTERS.—In structure, a urinary calculus usually consists of a central nucleus, surrounded by the body, and outside of all there may be a phosphatic crust. The nucleus may or may not be of the same material as the rest of the stone, sometimes a foreign body, mucous, or blood.

A section generally shows a stratified arrangement, or it may be partly or completely radiated.

SYMPTOMS.—The clinical signs of renal calculi are those consequent on the results of their presence, to-wit: Renal hemorrhage, renal congestion, inflammation, terminating in abscess, pyelitis, or pyelo-nephritis, cystitis, or renal colic.

The symptoms of renal colic begin abruptly, by severe, agonizing pain in the lumbar region, following the ureters

into the corresponding groin and thigh. Pain and retraction of corresponding testicle, also of glans penis. Face pale and features pinched, the surface cold and damp. Irritability of the bladder, the urine passed in drops, containing some blood. So severe is the pain at times that the patient may faint or pass into unconsciousness, or have a general convulsion. If both ureters are obstructed, uræmic symptoms will arise.

The paroxysm usually terminates suddenly, after some minutes or hours, the stone escaping into the bladder.

PROGNOSIS.—Renal calculus is attended with many dangers. It may produce extensive disorganization of the kidneys, or its passage along the ureter may prove fatal. If the stone be very large, or if more than one, the prognosis is graver. Calculus is a disease very apt to recur. Renal sand (gravel) and small concretions may, after more or less delay, be voided with the urine.

TREATMENT.—In patients suffering from renal calculi that have been weakened and debilitated from pain, etc., show a decided improvement under Bovinine, and where an operation has been performed for relief, more rapid improvement will ensue under Bovinine than anything else. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

CYSTITIS.

SYNONYM.—Catarrh of the bladder.

DEFINITION.—An inflammation of the mucuous membrane lining the urinary bladder, acute or chronic in its course, and of either a catarrhal, croupous, or diphtheritic character; characterized by rigors, moderate fever, hypogastric pain, frequent but scanty micturition and severe vesical tenesmus, the urine containing pus.

CAUSES.—Acute variety; long retention of urine; foreign bodies in the bladder; pyelitis; urethritis; blows over the pubes; myelitis, and secondary to fevers or diphtheria. Chronic variety; following the acute variety; retention the result of enlarged prostate or an urethral stricture; calculi; gout; chronic Bright's disease.

PATHOLOGICAL ANATOMY.—In acute catarrhal cystitis, there first insues hyperæmia of the mucous membrane of

the entire or a portion of the bladder, manifested by redness, swelling and œdema; followed by an increased secretion of the small glands at the base of the bladder, and an increased growth and consequent desquamation of the vesical epithelium, together with a copius generations of young cells; if the hyperæmia be decided, rupture of the capillaries and extravasation of blood occur.

If the inflammation be intense suppuration of the submucous connective tissues may result, and ulceration of the mucous membrane permit the sub-mucous abscesses to empty into the bladder.

If the inflammation be of a croupous or diphtheritic character, the morbid anatomy does not differ from the same variety of inflammation in other mucous membranes.

In chronic cystitis "the mucous membrane is thick, blue-gray in color, and very tough. Muco-pus and viscid mucous are formed in large quantities upon its surface. The muscular wall of the bladder may sometimes be half an inch thick, and the fasciculi give a ribbed appearance to the internal surface, called the 'columnar bladder.' The hypertrophy of chronic cystitis may be eccentric or concentric. In some cases diverticuli are formed, in whose walls are dilated and tortuous veins. In nearly all cases bacteria are found in abundance."—(Loomis.)

Symptoms.—Acute cystitis; the onset is usually abrupt, by rigors, slight fever, loss of appetite, sleeplessness, a feeling of depression; frequent nicturition, but the urine is only voided drop by drop, its passage followed by distressing vesical tenesmus, the result of spasm of the bladder, pain over the pubis and in the iliac regions, of a dull character, at times sharp and agonizing; burning along the urethra adds to the distress of the patient.

The urine is cloudy, of an alkaline reaction, and at times is fetid, the microscope showing epithelium, and red blood corpuscles.

Chronic cystitis; the onset is gradual and insidious, and is excited by some obstacle to the evacuation of the urine, such as stricture, the presence of a stone in the bladder, or enlargement of the prostate gland. There are present dull pain, frequent but scanty nucturition, the urine is alkaline, containing large amounts of muco-pus or pus; on stand-

ing, it deposits a thick, glairy, viscid sediment, in which, under the microscope, triple phosphates and large pus corpuscles, extremely regular both in shape and in contents, may be detected.

Although the quantity of urine voided by the patient is small, yet if immediately after micturition the catheter is used, several ounces of fetid, cloudy and akaline urine may be removed.

Patients with chronic cystitis usually present decided constitutional debility.

Severe local pain, emaciation and occasional bloody urine, indicate ulceration of the vesical mucous membrane.

Diagnosis.—Pyelitis has lumbar pains following the course of the ureters, frequent micturition without the severe vesical tenesmus; the urine, although cloudy, has an acid or neutral reaction.

Prognosis.—The acute variety is, as a rule, good, being controlled by the cause.

The chronic variety continues for years, and after hypertrophy of the bladder is incurable.

Treatment.—As a tonic and food in this condition, Bovinine is best of all. It should be given in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient. For bladder washings a teaspoonful of Bovinine in a pint of normal salt solution makes an ideal bladder washing. Two washings should be employed at each time. The first acts simply as a cleanser and the second as an anti-phleugistic and reconstructor.

MOVABLE KIDNEY.

Synonyms.—Floating kidney; wandering kidney; ectopia renis.

Definition.—A condition of the kidney, either congential or acquired, in which the tissues around about the organ are so lax and the renal vessels so elongated as to permit the kidney to be moved in certain directions, causing a movable tumor in the abdomen.

Causes.—The kidney is normally held in position by the layer of peritoneum which is attached to the anterior surface of its adipose capsule. In movable kidney, the adipose

tissue in which the normal kidney is imbedded partly or wholly disappears.

The renal vessels are in many cases abnormally long. Relaxation of the abdominal walls from pregnancy or other causes. The use of tight corsets or girdles about the waist; violence; increased weight of the organ from disease; the pressure of tumors growing in the neighborhood of the kidney; the traction of hernias.

The condition may be congential or acquired, more frequently the latter. It is far more frequent in women than in men.

Symptoms.—Floating kidney may and often does exist without any noticeable symptoms, the condition being unknown until accidently discovered by the physician while making a physical examination of the abdomen.

As a rule, however, patients experience a heavy, dragging pain in the abdomen, aggravated when walking or standing. There is also present gastro-intestinal symptoms, more or less constant with melancholia aggravated by the mental anxiety the presence of a tumor in the abdomen causes the patient, in spite of the assurances of the physician that it is not a cancer.

At times, from some unknown or unrecognized cause, the movable kidney swells and becomes very sensitive to the touch, and migrates a considerable distance from its normal position. Such an occurrence aggravates all the former symptoms mentioned. This condition has been ascribed to the twisting of the ureter and consequent retention of the urine in the pelvis of the kidney, or to a localized peritonitis, or to a partial strangulation of the kidney from compression or twisting of its blood vessels.

Hysterical symptoms are frequently observed in women suffering from a wandering kidney.

Diagnosis.—The dislocation of the kidney is to be recollected in determining the nature of obscure tumors within the abdomen.

The late Prof. Austin Flint based the recognition of this variety of abdominal tumor on the following diagnostic points: "It is situated in the hypochondriac region. It has the size and shape of the normal kidney, and this may be determinable by palpitation, which is most advantageously employed by placing one hand over the lumbar

region and the other in front of the abdominal walls, and then making counter-pressure from one hand to the other. It is generally moveable, and in some cases the organ can be restored to its proper situation."

Other tumors are to be excluded by the absence of their diagnostic characters.

PROGNOSIS.—It is a rare occurrence to have a fatal termination from moveable kidney per se.

TREATMENT.—Drug treatment symptomatic. Surgical operation necessary. Patients suffering with this condition usually become debilitated and run down. Bovinine acts splendidly as a tonic. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

ACUTE GENERAL DISEASES.—PAROTIDITIS.

SYNONYM.—Mumps.

DEFINITION.—An acute specific infectious inflammation of one or both parotid and other salivary glands and the surrounding connective tissue, with a very strong tendency to migrate into the mammæ or testes; characterized by pain, swelling and disordered function of the glands.

CAUSES.—A specific poison. Contagious. Occurs in epidemics, althongh isolated cases are seen. Males more liable than females. The most common ages between five years and puberty. As a rule, it occurs but once in the same individual.

The period of incubation is from one to three weeks.

PATHOLOGICAL ANATOMY.—There is inflammation of one or both parotid glands, and in severe epidemics the cellular tissue pervading the gland is involved.

The catarrhal inflammation begins in the gland ducts and rapidly extends to the gland proper. There is congestion, swelling and an infiltration of serous fluid, with more or less infiltration of the adjacent tissues. The swelling may suddenly reach an enormous size and as suddenly decline, the gland returning to its normal condition, or, rarely, an abscess results, with partial or complete destruction of the gland. Occasionally the submaxillary gland is involved, also the mammæ and testes.

Metastatic parotiditis occurs secondary to severe blood poisoning, as in pyæmia, typhoid or typhus fevers or diph-

theria. The usual termination of secondary parotiditis is by suppuration and destruction of gland structure.

SYMPTOMS.—The onset is rather sudden, by malaise, chill, fever, 101°-103° F., quick pulse, headache, dry skin, scanty urine, followed within a day or two by stiffness at the angles of the jaw, swelling of the parotid and other salivary glands, pain, increased by moving the jaws, with general œdema of the affected side of the face, at times the skin being reddened. Salivation is frequent, and occasionally deafness occurs.

The swelling and other granular symptoms subside about the sixth or seventh day, to be followed by restoration to health, or what is more common, the involvement of the opposite gland.

At any time during the disease metastasis to the mammæ, ovaries, or testes is apt to occur, when the symptoms peculiar to such affection will be added. It has been noted that a continuance of the temperature after the decline of the parotid symptoms has begun, usually is significant of metastasis. It is claimed that the involvement of other organs during the course of mumps is not an example of metastasis, but a true transfer of the disease.

DIAGNOSIS.—An error seems impossible.

PROGNOSIS.—Simple mumps, favorable; the chief danger being from the alterated function of the mammæ, ovary or testes after metastasis.

TREATMENT.—Drug treatment symptomatic. Bovinine should be given both as a food and tonic during and for two weeks after this condition, in small doses oft repeated, from five drops to a teaspoonful from every hour to four hours, according to the age and condition of the patient.

BOVININE IN DIPHTHERIA.

PIONEER CASE OF BOVININE TREATMENT IN DIPHTHERIA.

By Dr. SANFIELD, Cincinnati, Ohio.

Mary Bromley; American; age 12; was first seen January 18th, 1897, suffering from an aggravated attack of diphtheria. Her fauces, tonsils and palate were covered with diphtheritic membrane, which all the usual applications had failed to abate, even temporarily, the exudate continually re-forming as fast as it could be removed. As the case had become grave in the extreme, I urged immediate

intubation or tracheotomy; but the advice was rejected. At this moment, happily for the child and for myself, a professional brother suggested trying Prof. E. H. Pratt's idea of peroxide of hydrogen on Bovinine. Accordingly, the membrane covering the throat, fauces, tonsils and palate was generously painted all over with Bovinine, immediately followed by sprays of the undiluted peroxide. The chemical reaction between these agents, as cited by Professor Pratt, vigorously developed, with a lively effervescence, and at once loosened off and detached the entire membrane, which within five or ten minutes was coughed out complete, in a mass that would about fill a teacup. Not the least remarkable feature of the result was that on examination of the dislodged membrane its under surface showed the fibrils or roots, by which that formation is known to be interwoven, as it were, with the true tissue, making its removal by the ordinary means so difficult, painful, or incomplete. Here the false membrane was literally *eradicated* by a bland and easy solution of its attachments; and, when the froth of the reaction was washed out, leaving the more or less raw surfaces not only exposed but also permeable to be combined antiseptic and reparative powers of the Bovinine next applied. The breathing of the patient became almost normal within half an hour.

The same treatment was repeated hourly for the next twelve hours, keeping the exudate perfectly under control; the membrane but slightly re-forming, and yielding readily, becoming at once disloged and discharged in small particles. At the end of this time all evidences of continued formation of membrane had disappeared, and the condition of the true mucous membrane was sensibly ameliorated.

The patient being greatly exhausted with the disease and protracted want of nourishment—nothing but whiskey having been received in many hours—was on the verge of collapse, when the administration of Bovinine by the mouth was commenced, giving a teaspoonful in milk every two hours. Bovinine was also spread upon the raw surfaces, with healing effect, every half-hour; but at every third hour the peroxide was added on the Bovinine as a precaution against a possible renewal of membrane formation.

Resustentation was now so rapid under the vital nourishment administered that in forty-eight hours from the first

treatment the patient was sitting bolstered up and comfortable, having entered on a stage of rapid convalescence. I am convinced that this novel and simple physiological treatment is well worthy the attention of the profession.

It may seem superfluous to add anything to so clear and complete an illustrative demonstration as that given by Dr. Sanfield's case. Yet it may be useful to note how plainly diphtheria calls for Bovinine by every one of its symptoms and conditions, and how precisely it meets each of its demands. We naturally note, first, the fatal membrane, and the harsh, exasperating applications heretofore required for its dislogment. Bovinine, on the contrary, cooling, soothing, healing, and mysteriously annihilating pain at the first topical application, begins also the oxidation of the exudate, or false membrane, by the action of the oxygen-carrying blood-cells, so well recognized as a cardinal element in animal physiology; then receives fresh and ample reinforcement of oxygen from the addition of peroxide of hydrogen; raising the oxidising action to a lively yet bland effervescence of the septic exudate, which immediately comes away, broken up, and probably sterilized; and, when the frothy effervescence is washed off, leaving the exposed tissue clear to absorb the vital nutrition afforded by the further application of Bovinine

Their is no conceivable reason why this process, repeated at need, should not continue to frustrate the formation of the fatal membrane from first to last, penetrating antiseptically to the roots of it in the true membrane; while the clinicial demonstration of its efficacy to this purpose, given by Dr. Sanfield in an extreme case, is of such a conclusive and universal nature, histologically, that it is just as good as a thousand more of the same.

But what of the bacteriological and constitutional sepsis that comes next in tracing back the chain of causes? Let us ask, in reply—Who knows of an antiseptic or a germicide comparable to oxygen, whether in remedial or resistant power, and against local or constitutional sepsis or bacterial invasion? Only, here is the new and triumphant point of departure: oxygen is now found practically available for diphtheria, in indefinite power, through the kindly carrier given in all animated Nature for its wholesome, harmless

conveyance throughout the living tissues! Whether the spraying of peroxide, or the inhalation of oxygen, upon the applied Bovinine will prove to be the preferable method, or in what cases, remains to be determined by further experience. In either way, the principle and the agency are sovereign and indisputable, if there is any known fact in physiology. There is found in an avenue and a carrier to the very focus of the disease, for that sovereign power that (admittedly) forbids disease, and that power in consummate development or reinforcement.

Now, reverting to the first onset, in the bacterial or ex-bacterial invasion, with its bounding pulse and pyrexia, followed by the anæmia and prostration produced by a decimation of the blood-cells; whatever treatment may be pursued with the fever or for the stimulation of the after-depressed circulation, and weakness, must be conceded to be but palliative, and subsidiary to more radical means for reinforcing the blood itself in its nourishing, antiseptic and bactericidal powers. It is only the latter of these powers that the two most highly-approved medicinal expedients of the day aim to reinforce, by different means: the one by stimulating leucocytosis, or an extraordinary proliferation of the white cells that antagonize bacteria; the other, by injecting an antitoxin for the destruction of the bacteria or the neutralization of their poison product. Nourishment and support of the strength are left to the joint care of whisky and the almost prostrate functions of alimentation. The blood, which was too weak, in the first place, duly to nourish and protect the system, and is already much further disabled, is hourly becoming still worse disabled by its encroaching foe, and septicæmia is coming on, while the medical management is calling on the blood to "proliferate" more; or, perhaps also, is sending in a foreign ally to exterminate the foe; but, in either case, is leaving the poor blood to exhaust itself, unaided by its own efforts as well as by the unceasing, if diminished, batteries of the infection; unaided, that is, except by the feeble effort of the stomach to assimilate weak and scanty aliment which it can barely tolerate.

Bovinine is a palpable combination of all the elements or powers requisite to meet the several conditions that confront us. Do we want a life-stream replete with the fight-

ing leucocytes; with the red artillery of oxygen, before which septic matter dissolves in foam and billion-billions of bacteria melt away; and with the richest nutrition ready vitalized for direct incorporation into the tissues of languishing organs and nerves? There it is. We can introduce all this directly into the impoverished blood of the sufferer through faucial and alimentary absorbents, and, if necessary, by hypodermic injection, without the slightest interference with anything in Nature or medicine, and without waiting either for dubious antitoxination or for constitutional blood-recuperation—too slow, if indeed any, to head off the rapid intoxication that is spreading throughout the system.

Whatever else we see fit to do, let us, at the same time, without taking chances by the omission of other means, try the peroxide-on-Bovinine for the membrane, and the Bovinine *per se* to reinforce the protective and sustentative powers of the blood, as well as to heal the lesions of the throat.

MALIGNANT DIPHTHERIA.

By Dr. T. J. Biggs, Sound View Hospital.

Kate H——, Glenbrook, Conn.; age 12; American. Was called in consultation, December 12th, 1898, by Dr. B——; a well-defined case of diphtheria (malignant). An inspection of fauces revealed them red and swollen, and covered with diphtheritic exudation; tonsils and uvula were also spotted. Removal of a portion of the false membrane revealed the tissues badly ulcerated; breath was foully offensive; lymphatic gland of neck tremendously enlarged and greatly tumefied; membrane had extended into the nasal cavities, also to the larynx; pronounced obstructive dyspnœa; the breathing noisy and stridulous. Urine contained a little over 1 per cent. albumen. I advised immediate tracheotomy, believing it the only chance the child had. This was refused me. I therefore determined to try the Bovinine-peroxide treatment.

Bovinine pure was first sprayed into the nasal passages thoroughly, then peroxide of hydrogen. Reaction between Bovinine and peroxide rapidly took place, and before it had ceased I sprayed also into the throat and larynx the Bovinine and peroxide. So extensive was the reaction that the

patient almost strangled. About five minutes after the first spraying into the larnyx, it was repeated. This was followed by vomiting and expulsion of the entire false membrane that had covered the throat, tonsils, uvula and larynx. The patient was now able to breathe more freely, and was entirely relieved of dyspnœa. The false membrane in nose still remained attached. Therefore, Bovinine and peroxide were again sprayed in, and after reaction had ceased, by the aid of a pair of dressing forceps the membrane was removed from both nostrils intact, being in shape conformed to that of the passages. So great was the relief to the patient that she immediately sank into a profound sleep, having been completely exhausted by her previous struggles for life, and having eaten nothing in three days. I determined to give her immediately a high rectal Bovinine feeding, which consisted of four ounces Bovinine, two ounces milk, and a tablespoonful of lime water. Intsructions were given the nurse to spray Bovinine pure into the throat and nasal passages every hour, and every three hours repeat the Bovinine and peroxide. Before I left the patient, the throat was again sprayed out with the Bovinine and peroxide, having hard work to arouse her for it. The nurse was also instructed to give her the rectal feeding every three hours, and by mouth two drops of beechwood creosote and one-thirtieth grain biniodide of mercury.

December 14th, I visited again with Dr. B——, and found patient greatly improved; only one small patch of membrane, and that on the right tonsil. The throat, although raw, was in a comparatively healthy condition. Same course of treatment as before advised by me, and ordered carried out by Dr. B——.

December 17th, saw patient again, and found her still improving; patch of membrane on tonsil had entirely disappeared; rectal injections were now ordered twice daily, night and morning, and one teaspoonful of Bovinine in old port wine internally every two hours. The Bovinine spray, alternating with peroxide of hydrogen, was ordered continued. Up to this time the patient had lived on Bovinine with a little milk, to the exclusion of everything else; but seemed, nevertheless, to be perfectly nourished and gaining in strength.

December 20th, again saw patient with Dr. B——, and

found her again much improved. Examination of urine at this time showed it to be normal, with the exception of a slight excess of phosphates. Patient said she felt so well she wanted to get up, but I advised her remaining in bed.

December 23rd, again saw her, found her so much improved that I consented to her sitting up awhile. The throat was now almost entirely healed, with the exception of a small spot on either tonsil and the tip of the uvula. The Bovinine pure sprays were ordered continued, and internally, a tablespoonful of Bovinine in milk every three hours, and a light nutritious diet.

December 26th, Dr. B—— called on me to say that he had discharged the case.

EXTREME DIPHTHERIA.

By Dr. T. J. Biggs, Sound View Hospital.

Ella S——, Stamford, Conn.; American; aged 7; February 27th, 1899. Diagnosis: Diphtheria. Dr. S—— called me in consultation, with an idea of tracheotomy. An examination of the throat revealed the fauces completely covered with the membrane, extending down into the throat. The child could barely breathe, and I at first thought tracheotomy the only remedy. But the mother objecting so seriously to the operation, I determined to try the Bovinine and hydrozone. The Bovinine was thoroughly sprayed into the throat, and immediately afterwards the hydrozone was also sprayed in; the reaction was tremendous, almost strangling the child, and caused vomiting, which brought away the entire membrane, leaving an ulcerated, bleeding surface. The mother was instructed to spray in the Bovinine and hydrozone every half-hour during the night. As she had not been able to take nourishment for fourty-eight hours, the child was in a very weak condition; consequently, a high rectal injection of Bovinine and salt water was given, the quantity being two ounces Bovinine and one ounce salt water. This was ordered to be repeated in three hours; but in fifteen minutes after the first injection the patient sank into a restful sleep. On returning in the morning we found the patient considerably improved; mother said the child had slept well all night, except when she awoke her to administer the Bovinine and hydrozone.

An inspection of the throat now showed the surface less red and swollen, and entirely free from false membrane. The Bovinine and hydrozone were now ordered every three hours, and Bovinine pure sprayed into the throat every hour. Internally, a teaspoonful of Bovinine every two hours. March 1st, Dr. S—— reported the case doing splendidly. March 2d, saw the case with Dr. S——; found the patient sitting up in bed, feeling quite comfortable. Inspection of throat showed that the redness and swelling had entirely disappeared, and the surface was almost healed. I advised discontinuance of the Bovinine and hydrozone, but to continue the Bovinine spray. March 5th, Dr. S—— reported the throat entirely healed.

DIPHTHERIA.

Synonyms.—Putrid sore throat; malignant ulcerous sore throat; malignant quincy; membranous angina.

Definition.—An acute, specific, constitutional disease; both epidemic and contagious, beginning by an affection of the throat, characterized by a local exudation and glandular enlargements; attended with fever, great prostration of the vital powers, and albuminuria, and often having for its sequelæ various paralyses.

Causes.—A specific germ of the Klebs-Loeffler bacillus. The bacillus in its growth produces a potent toxic substance—a toxalbumin—the absorption of which produces the disease, and not the organism itself. The diphtheria bacillus is associated with other pathogenic bacteria, the most active of which is the streptococcus pyogenes. It is pre-eminently a disease of childhood. It is apt to recur in those who have once been affected. All conditions of bad hygiene increase its virulence and diffusion, although the chief cause of its spread is contagion. Nasal, pharyngeal and laryngeal catarrh are the kind of soil promoting the growth of the bacillus and its toxin.

The poison exists in the exudation and secretions of the fauces and saliva, and floats in the atmosphere at a considerable distance from the patient. The virus adheres to the clothing, the bedding, the furniture and the room which the patient occupied.

The period of incubation is from three to five days.

Pathological Anatomy.—The diphtheritic inflammation

differs from either the croupous or catarrhal form in that the exudation is not only upon, but also within, the substance of the mucous membrane.

At first there is redness, which may begin in any part of the throat, associated with swelling and an increased secretion of viscus mucous. The redness spreads over the entire mucous surface, when the exudation makes its appearance, at first giving the affected mucous membrane a glazed appearance, which is very characteristic. The deposit may commence from one or several points, such as one tonsil, the soft palate or the back of the fauces, which, however, speedily extend and coalesce, forming extensive patches, or cover uniformly the entire surface.

The patches are of variable thickness, which is increased by successive layers being formed underneath.

The color is usually gray, white, or slightly yellow, but may be brownish or blackish, the consistence ranging from "cream to wash leather."

On removing the membrane, which is accomplished with more or less difficulty, a raw, bleeding surface is exposed, and at times an ulcer, which is speedily covered with a fresh deposit.

If the exudation separate itself, it is either not renewed at all or only in thinner films.

The exudation or membrane, examined by the microscope, is composed of fibrin, pus corpuscles, epithelial granular cells, and the Klebs-Loeffler bacillus and other pathogenic bacteria.

If the larynx, trachæ, or nasal mucous membranes participate in the disease, the croupous and not the diphtheritic form of inflammation occurs.

The lymphatic glands of the neck, whose vessels originate in the faucial tissues, are enlarged and inflamed, and contain large numbers of bacteria, probably originating as the result of decomposition.

The muscular tissue of the heart becomes soft, is easily torn, and its fibrillæ are far advanced in granular degeneration. Ulcerative endocarditis has been frequently observed. The kidneys undergo a granular degeneration in severe attacks. The blood undergoes alteration, being black and fluid.

Symptoms.—Following the law of contagious diseases,

the symptoms vary in intensity in different cases, the prominent symptoms being often disproportionate to the gravity of the attack.

The invasion may be mild, with rigors, succeeded by moderate fever, headache, languor, loss of appetite, stiffness of the neck; tenderness about the angles of the jaw, or slight soreness of the throat.

In other cases, the invasion is more abrupt and severe, with chilliness, followed by great febrile reaction, 103° to 105° F., pain in the ear, aching of the limbs, loss of strength, painful deglutition, and swelling of the neck, compelling the patient to take to bed from the onset.

The appetite is poor, tongue slightly coated, sometimes more or less exudation appearing upon it, bowels either regular or slightly relaxed. Pulse, at first full and strong, soon becomes either rapid or slow, but compressible. The urine is scanty, high-colored and contains albumin.

The local symptoms, in the majority of cases, are associated with the throat. The patient often complains of a frequent and persistent desire to hawk, in order to clear the throat. On inspection, the fauces are seen red and swollen and more or less covered with the diphtheritic exudation; sometimes the tonsils are greatly swollen and spotted with exudation. In bad cases, more or less ulceration or sloughing may be observed. Not unfrequently, fragments of exudation, the false membrane, are expectorated, with particles of the ulcerated tissues, having an offensive odor, which is transmitted to the breath. The lymphatic glands of the neck are enlarged and tender, and in severe cases, the tissues of the neck are greatly tumified.

Extension to the nasal cavities causes a sanious and offensive discharge from the nose, with attacks of epistaxis.

Extension to the larynx is indicated by hoarseness or complete loss of voice, croupy cough and obstructive dyspnœa, which often become urgent, the breathing being noisy and stridulous, and subject to paroxysmal exacerbations. If the inflammation extend to the bronchi, the breathing becomes still more embarassed.

Duration. — Ranges from two to fourteen days, an average being about nine days, although complications and sequelæ may prolong its course.

Relapses are not uncommon.

SEQUELÆ.—Those who recover from a severe attack often remain for weeks with a pale and cachectic appearance, due to the profound blood alteration.

Paralysis is a common sequelæ, following the mild as often as the severe attacks. Usually not occurring until the patient seems fully convalescent.

Pharyngeal paralysis is the most common, causing difficulty or inability of deglutition, fluids regurgitating through the nose.

Cardiac paralysis is not unfrequent, the pulsations descending to 60, 50 and 40, and in a case seen by the author, to 20 per minute.

Diphtheritic paralysis may affect the motor muscles of the eye, causing strabismus; the muscles of one side, hemiplegia; of the legs, paraplegia; and of the bladder, leading to retention of urine or difficulty in passing it.

Sensation is also diminished in the paralyzed parts.

DIAGNOSIS.—From follicular ulceration of the tonsils, which is frequently termed diphtheria, by the slight or absent systemic symptoms, the ulcerated condition being limited to the tonsils, but often one, and the absence of glandular enlargement and following palsies.

From pharyngitis, by the absence of exudation and loss of faucial tissue and constitutional symptoms.

From scarlatina, by the presence of the eruption and the absence of membrane in the fauces.

From membranous croup, by the difference in the constitutional symptoms; croup appears sporadically and is not contagious, diphtheria being highly contagious and frequently occurs in epidemics; in diphtheria of the larynx, the depression is clearly that of blood poisoning, while in croup, the depression is in proportion to the mechanical obstruction of the respiration by the membranous exudation. The pathology of croup is simple and easy of investigation; diphtheria is obscure in its etiology and progress. The temperature record of croup is a high one until carbonic acid poisoning is imminent from the mechanical obstruction of respiration, while in diphtheria, the tendency to a decline in the temperature after the second day is nearly characteristic, regardless of the amount of laryngeal obstruction. In croup the pharynx contains no mem-

brane, and is but slightly, if at all, inflamed, and associated trouble in the nose is of the rarest occurrence, the very reverse obtaining in diphtheria. In croup the laryngeal symtoms are from the onset, while in laryngeal diphtheria the pharyngeal symptoms almost always precede. In croup glandular involvement is a clinical novelty, as are subsequent palsies, while glandular involvement and various palsies are the rule in diphtheria. Albuminuria is the rule in diphtheria, seldom occurring in croup.

Prognosis.—Always grave, but more so in children than in adults. Its gravity, in the majority of cases, is proportionate to the local symptoms. The average mortality is about ten per cent.

Favorable indications are, moderate fever, strength slightly impaired, a good constitution, and moderate exudation.

Unfavorable indications are, great depression, spreading exudation, great swelling of the cervical glands, large amount of albumin, extension to larynx and nasal mucous membranes, hemorrhages from the fauces and nose, and an epidemic character.

Treatment.—Probably in no condition is Bovinine so completely and thoroughly useful. Internally it should form almost the entire food, and it also acts as a tonic. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient. In all cases of malignant diphtheria it should be used rectally four ounces of Bovinine to three or six ounces of salt solution from twice a day to every three hours. Locally the Bovinine should be sprayed in the throat, employing a De Vilbliss albolem atomizer. Immediately following this hydrozone pure should be sprayed in. When reaction takes place, the throat should be cleaned out with Thiersch solution, and then sprayed with iodoform Bovinine. This should be repeated from every hour to three hours, according to necessity, the idea being to keep the throat clean. After the membrane has ceased forming and the process of healing begins, then the throat should be sprayed every two to three hours with Bovinine pure. In every instance reported where Bovinine was thus employed, not a single case was lost and not a single complication resulted.

ACUTE ARTICULAR RHEUMATISM.

SYNONYMS.—Rheumatic fever; inflammatory rheumatism.

DEFINITION.—A constitutional disease, characterized by fever, inflammation in and around the joints, occurring in succession, and a great tendency to inflammation of either the endocardium or pericardium.

CAUSES.—The predisposing causes are inherited tendency, scarlatina, and the puerperal state.

The exciting causes, exposure to cold and chilling of the body. Rheumatism rarely occurs before seven or after fifty years. The liability to the disease is increased by having had an attack.

PATHOLOGICAL ANATOMY.—The blood contains an excess of lactic acid. The joints bear the brunt of the attack; the synovial membrane is reddened, the vascularity of the synovial fringes is increased, so with the synovial fluid, which is thinner, of a reddish color, containing some gelatinous coagula of fibrin, and under the microscope nucleated cells, ordinary pus cells are rarely seen.

The swelling visible about the affected parts depends mostly on the inflammatory œdema of the connective tissue around the joint.

The pain is probably due in all cases, to stretching of and pressure on the elements of the tissues by the dilated capillaries and the inflammatory œdema. For the changes which ensue when the endo and pericardium are attacked, the reader is referred to the sections on those diseases.

SYMPTOMS.—Begins suddenly, generally at night, with a chill or chillness, pain and stiffness in the joints, loss of appetite, at times, nausea and vomiting, followed by fever, the temperature soon reaching 102° F. to 104°, in rare cases, 108° to 110°, (hyperrexia) the pulse seldom exceeding 95, great thirst, profuse acid sweats, scanty, high-colored, acid urine, at times showing traces of albumin, the bowels constipated. The fever continues throughout the attack, showing marked remissions. Delirium is absent, except the hyperpyrexia occur. Sleep is prevented by the pain and the profuse perspirations. The strength is moderately well preserved.

The skin is often covered with an eruption of miliaria rubra, red papulœ and miliaria alba, the result of irritation at the orifices of the perspiratory glands, from the excessive sweating.

The local phenomena are pain, tenderness, increased heat, swelling and redness of one or more joints; if but one joint, it is termed monoarthritis, if more than one, polyarthritis. Pain is aggravated by motion and pressure. Swelling is most apparent in those joints not covered with muscle, to-wit: knee, wrist, elbow, ankle, and the hands and feet, and is proportionate to the acuteness of the attack. The inflammation may abruptly cease at one or more joints, and as suddenly attack others.

The disease is extremely irregular as regards the number of joints affected, although the local manifestations are controlled by an important pathological law, to-wit: The law of parallelism. Corresponding joints are often affected together, and when not, the different affected joints are either on one side of the body or those on both sides which are analogous, as, the knee, elbow, wrist, ankle, hip and shoulder, are attacked together.

Complications.—Pericarditis, endocarditis, myocarditis, cerebral endarteritis, bronchitis, pneumonitis, and pleuritis.

Duration.—The duration of acute rheumatism is governed entirely by the presence or absence of complications. Uncomplicated cases recover in from thirteen to twenty-one days, although they may be prolonged to five or six weeks. Relapses are frequent.

Diagnosis.—A typical case cannot be mistaken for any other disease, but cases running a subacute course may be mistaken for acute rheumatoid arthritis, gonorrhœal rheumatism, or pyæmia.

Acute rheumatoid arthritis attacks one joint at a time and becomes permanent, has slight if any fever, no sweats or cardiac lesions.

Gonorrhœal rheumatism is associated with a gleety discharge, attacks either the ankle or wrist only, is slowly influenced by treatment, and lacks the febrile phenomena.

Pyæmia is usually manifested at a single joint at the time, and is followed by supperation and all the symptoms of hectic fever.

PROGNOSIS.—Recovery is the rule in uncomplicated cases, the mortality being about three per cent. When death occurs it usually depends upon hyperpyrexia, cardiac complication, or cerebral endarteritis.

TREATMENT.—Drug treatment symptomatic. In this condition, you almost invariably find the patient in a run down and anæmic state; therefore as a tonic and food Bovinine meets every indication. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

MUSCULAR RHEUMATISM.

SYNONYMS.—According to location, to wit: cephalodynia; lumbago; torticollis; pleurodynia.

DEFINITION.—An affection of the voluntary muscles, inflammatory in character, either acute or chronic; characterized by pain, tenderness, and stiffness of the affected muscles. It is never complicated with cardiac disease.

CAUSES.—A disease of adult life. One attack predisposes to another. Almost always due to cold and damp, or direct draught of cold air. Gout increases the tendency to attacks.

PATHOLOGICAL ANATOMY.—The true nature of muscular rheumatism is not yet determined. Virchow suggests a "hyperæmia of, and scanty serous exudation between, the muscular striæ, and in chronic cases inflammatory proliferation of the connective tissue."

SYMPTOMS.—The first attack is generally acute. Onset rather sudden, with pain in the affected muscles, with slight tenderness, and considerable stiffness, and difficulty of movement, by which also the pain is increased.

The suffering may be severe and constant, or only on motion. Spasm of the affected muscles may occur. Objective symptoms are wanting, except it is evident that the patient keeps the affected muscles as quiet as possible. Fever is absent. The pain may prevent sleep.

Duration, acute form, about one week. Chronic returns frequently, and finally becomes constant and aggravated when the weather is damp.

VARIETIES.—It may affect any or all of the voluntary muscles, but its most frequent and important varieties are:

1. Cephalodynia. Situated in the occipito-frontal muscles. Distinguished from neuralgia of the trifacial, or occipital nerve, by pain on both sides of the head, excited or aggravated by movements of the muscle, and by absence of disseminated points of tenderness.

The muscles of the eye may be affected and movements of that organ excite pain. If the temporal and masseter muscles are attacked, mastication excites pain.

2. Torticollis. Wry neck, or stiff neck. Situated in the sterno-mastoid muscles. Generally limited to one side of the neck, toward which side the head is twisted, great pain being excited in attempting to turn to the opposite side. Rheumatism of the muscles of the back of the neck, cervicodynia, may be mistaken for occipital neuralgia.

3. Pleurodynia. Situated in the thoracic muscles, and may be mistaken for pleuritis, or intercostal neuralgia, from which it is differentiated by the absence of the diagnostic features of each. Pain is excited by forced breathing, coughing and sneezing.

4. Lumbodynia or lumbago. Situated in the mass of muscles and fasciæ which occupy the lumbar region. Most common variety. Usually affects both sides. It may set in rapidly and become very severe. Motion of any kind aggravates the pain, often becoming very sharp or stabbing in character. It is sometimes complicated with acute sciatica, when the suffering is agonizing.

Diagnosis.—The different varieties may be mistaken for any of the following ailments, to wit: trifacial, occipital or intercostal neuralgia, pains of progressive muscular atrophy, syphilis, metallic poisons, or painful affections of the loins, arising from calculi or gravel in the kidney.

A careful examination of the history is usually sufficient to arrive at a correct diagnosis.

Prognosis.—Difficult to eradicate, and in chronic cases to ameliorate; but it is not dangerous to life. Death never results.

Treatment.—Drug treatment symptomatic. In this condition, you almost invariably find the patient in a run down and anæmic state; therefore, as a tonic and food Bovinine meets with every indication. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

RHEUMATOID ARTHRITIS.

SYNONYMS.—Arthritis deformans; rheumatic gout.

DEFINITION.—An inflammation of the joints, accompanied with but slight fever, without suppuration, progressive in character, causing nearly symmetrical enlargement and deformity of various articulations.

CAUSES.—More common in females than in males, and in the weak and anæmic. Among the causes are bad hygiene, exposure, prolonged lactation, frequent pregnancies, menopause, grief, tubercular diathesis, and following attacks of articular rheumatism.

PATHOLOGICAL ANATOMY.—It is not rheumatism, as the blood contains no lactic acid. It is not gout, as uric acid is not found in the blood nor urate of sodium in the joints.

At first rheumatoid arthritis is attended with hyperæmia of the affected synovial membrane and increase of the synovial fluid. Soon the capsular ligament becomes irregularly thickened, the synovial fluid decreasing. If the process continue, the internal ligament is destroyed, thus allowing dislocations to occur. The inter-articular fibro-cartilages ulcerate and disappear, as do the cartilages covering the ends of the bones, the ends of the bones becoming smooth and eburnated, and often greatly enlarged.

SYMPTOMS.—Either acute or chronic, the latter most common.

Acute form involves several joints at the same time, and is attended with slight pyrexia.

Chronic form slowly involves one joint, which seemingly soon recovers, and is attacked again and may never recover, but grows progressively worse.

The joint slowly enlarges, is painful, movement exciting neuralgic pains along the limb. Soon the articulation becomes rigid or slightly movable after prolonged attempts. Redness and tenderness are wanting. Crepitation is distinct after ulceration has destroyed the cartilage.

The hands are first involved, the disease spreading symmetrically from articulation to articulation, and in severe cases every joint is deformed.

DIAGNOSIS.—Chronic articular rheumatism is often confounded with rheumatoid arthritis; but the former lacks

the marked structural changes and the progressive involvement of joint after joint.

Gout differs from rheumatoid arthritis by the presence of deposits of urate of sodium in the joints, the ears, tips of fingers and the bursæ over the olecranon process of the elbow, the presence of uric acid in the blood, and the decided history of acute paroxysms.

Gonorrhæal rheumatism, so-called, has symptoms akin to rheumatic arthritis, but the history of urethral suppuration clears up the diagnosis.

Paralysis agitans, when pronounced, might be confounded with rheumatoid arthritis, if the examination were limited to the joints, but the whole history, such as the tremor, the gait, etc., should prevent error.

PROGNOSIS.—If early treatment be instituted, the disease may be held in abeyance for several years. After pronounced structural changes have begun, the malady is incurable, although it may remain stationary for a long time.

TREATMENT.—Drug treatment symptomatic. In this condition, you almost invariably find the patient in a run down and anæmic state; therefore, as a tonic and food Bovinine meets every indication. It should be given in doses ranging from five drops to a wineglassful every hour to four hours, according to the age and condition of the patient.

GOUT.

SYNONYMS.—Podagra, gout in the foot; chiragra, the hand; gonagra, the knee.

DEFINITION.—A constitutional disease, usually inherited; characterized by the sudden occurrence of a paroxysm of severe pain and swelling in one of the smaller joints—the great toe usually—with the presence of uric acid in the blood, and the deposit of the urate of sodium in the structure of the joint.

CAUSES.—Predisposing; inherited; male more than female—women after menopause.

Exciting: Malt liquor and wine drinking, whether male or female; large consumption of animal food; lead poisoning; winter season.

When inherited tendency, may begin early in life; when acquired tendency, after thirty-five years.

The pathological cause consists in the presence of an excess of uric acid in the blood, in the form of urate of sodium.

PATHOLOGICAL ANATOMY.—Gout is characterized by the deposit of urate of sodium from the blood into the structure of joints and tissues that are not very vascular. The deposit is associated with signs of inflammation, to-wit: Hyperæmia, redness of the surface, with swelling and effusion in and around the affected joint. The surfaces of the joint are incrusted with chalk-like masses, consisting of urates, which become greater with each attack, finally causing great deformity.

The deposit usually begins in the metatarso-phalangeal joint of the great toe, but other and many joints are soon affected.

The deposit may also be found in the knuckles, eyelids, and cartilages of the ear.

Hypertrophy of the left ventricle and of the arteries, ending in atheromatous changes, are results of gout.

SYMPTOMS.—Acute gout is rare in the United States. It occurs in paroxysms; one year's interval between the first and second attack; six months usually between the second and third, after which it may occur at any time.

Prodromes usually precede the paroxysm for several days, to-wit: Acid dyspepsia, constipation, headache and lassitude.

The paroxysm begins suddenly, between midnight and 2 A. M., with acute pain in the ball of the great toe, which becomes red, hot, swollen, and so sensitive that the slightest touch cannot be borne.

The veins are filled, the foot, ankle and leg swollen, and the limb the seat of sudden spasmodic contractions, which increase the suffering; slight relief is afforded by elevating the limb. Associated with the local symptoms are chill, fever, quickened pulse, thirst, coated tongue, constipation, and scanty, acid, high-colored urine, which deposits, on cooling, a heavy brick-dust sediment.

Toward daylight the symptoms ameliorate, to return again at sundown, the severity gradually lessening until the fourth or fifth day, when convalescence is established.

the patient, as a rule, feeling better than before the attack.

Chronic Gout: Either the result of acute attacks or with a greater number of joints being attacked.

The paroxysms occur at any time, but develop slowly, with less pronounced local and general symptoms. Deposits are noticed, the joints becoming hard, knobby, and often distorted. The deposits or chalk-stones (urate of sodium) occur about the joints, tendons and burræ, and helix of the ear.

Diagnosis.—An error cannot occur if the history of the case can be obtained, to-wit: Hereditary tendency, age, sex (females rare, until menopause), mode of living, character of symptoms, and presence of the characteristic deposits.

Prognosis.—Acute gout rarely fatal; is prone to return, but much depending upon the mode of living.

Chronic gout decidedly shortens life. The most serious signs are those indicating advance of renal disease, with non-elimination of uric acid. Gout influences unfavorably the prognoses from acute diseases or injuries.

Treatment.—In this condition we usually find a patient who has been more or less of an epicure, eating and drinking large quantities of animal food and malt liquors. Have your patient abstain from all alcoholic stimulation, go on an absolute Bovinine diet, from a teaspoonful to a wineglassful, from every hour to four hours, as may be indicated. Improvement will be invariably the result.

LITHÆMIA.

Synonyms.—Lithiasis; uric acid diathesis; half gout.

Definition.—A condition in which the fluids of the body are saturated with nitrogenized waste, in the form of lithic or uric acid; characterized by marked dyspepsia, various nervous phenomena, muscular and articular pains, bronchial catarrh, all or any of these associated with scanty, high-colored acid urine.

Causes.—High living, with little exercise; imperfect digestion of nitrogenized food; impaired elimination of uric acid.

Symptoms.—Those of dyspepsia associated with irregular bowels, scanty, high-colored, acid urine, sp. gr. 1.024-1.028, containing neither sugar nor albumin, but showing an in-

creased proportion of urates. Also, depressed spirits, impaired memory, loss of interest in occupation, sleepless nights, attacks of vertigo, neuralgic pains in the head, and a constant dread of apoplexy or cerebral disease. Also, pains in the joints, neuralgic in character.

If the condition be allowed to continue, the following organic changes may result, to-wit: fatty heart; fibroid kidney; enlarged liver; or changes in the cerebral vessels.

Diagnosis.—From gout, by the absence of acute paroxysms and resulting changes in the joints.

Prognosis.—If properly recognized and treated, complete recovery will result, although it is a disorder of long duration.

If not properly treated, develops some one of the organic diseases mentioned.

Treatment.—Drug treatment as indicated. Bovinine diet in doses from a teaspoonfnl to a wineglassful from every hour to four hours, according to the age and condition of the patient, and continued indefinitely will show a very decided improvement.

DIABETES MELLITUS.

Synonyms.—Glycosuria; melituria.

Definition.—A chronic affection characterized by the constant presence of grape sugar in the urine, an excessive urinary discharge, and the progressive loss of flesh and strength.

Causes.—Most common in males. Occurs at all ages, but most frequently between twenty-five and fifty years. It is often hereditary. Disorders of the nervous, hepatic and renal systems. Excessive use of farinaceous food and malt liquors. Sexual excesses.

The exact pathology of diabetes mellitus differs in different cases, and in the present state of our knowledge no exclusive view can be adopted. Still, there are reasons for believing that, in a large proportion of cases, the nervous system is primarily at fault, though the character of the lesions may differ.

Pathological Anatomy.—None peculiar to diabetes are yet recognized.

Hyperæmia and hypertrophy of the liver and kidneys are generally present, the result of increased functional activity.

The changes in the lungs peculiar to phthisis are often found in very chronic cases.

The changes in the nervous system are not fully determined.

Symptoms.—Clinically, cases differ greatly in their course and severity; one class presenting slight symptoms and a chronic course; another class having marked local and constitutional symptoms and an acute course. The symptoms of a typical case may be arranged under the following heads:

Urinary organs and Urine. Micturition more frequent and the urine increased in quantity. Pain over the region of the kidneys. The quantity of urine may amount to 4, 8, 12, or 30 pints in twenty-four hours. It is usually pale, clear and watery, having a sweetish taste and odor, the specific gravaty ranging from 1.025 to 1.050. It ferments rapidly if kept in a warm place. It yields grape sugar to the usual tests, the amount present varying from one ounce to two pounds in twenty-four hours.

The urea and uric acid are increased. Albumin may be present.

The increased passage of a large quantity of saccharine urine causes a constant itching, burning and uneasy sensation at the prepuce, along the urethra, and at the neck of the bladder; in females, itching and eczema of the vulva are common; in children, incontinence of urine is frequent.

Digestive organs. An almost constant symptom is thirst, with a dry and parched condition of the mouth. At times the appetite is excessive, again absent. The breath may have a sweetish odor, the tongue irritable, red and often cracked. Dyspeptic symptoms are common, and occasionally vomiting. The bowels are constipated, the stools pale and dry. At times diarrhœa may occur.

The patient complains of feeling very weak, languid, and of soreness and pain in the limbs, there is more or less emaciation, a harsh, dry skin, the countenance distressed and worn.

The mind is often greatly altered; depression of spirits, decline in firmness of character and tone, with irritability,

are present. Sexual inclination and power are diminished. Defects of vision are present.

The blood and various secretions contain sugar.

Complications.—Pulmonary phthisis; Bright's disease; defects of vision from atrophy of the retina or the formation of a soft cataract; boils and carbuncles, and chronic skin affections, such as psoriasis and eczema.

Course.—The clinical history varies in different cases. In the majority of instances the course is chronic, lasting for years, the symptoms beginning insidiously, and becoming progressively worse. Occasionally the disease runs an acute course, death occurring within four or five weeks.

Termination.—The majority of cases ultimately prove fatal, the symptoms markedly changing, the urine and sugar diminishing in quantity, the occurrence of albuminuria, disgust for food and drink, and the development of hectic fever or colliquative diarrhœa.

The fatal result usually arises from gradual exhaustion, from blood poisoning, leading to stupor, ending in complete coma, or occasionally to delirium or convulsions, or from complications.

Rarely death occurs suddenly, from uræmic convulsions or uræmic coma.

Diagnosis.—Diabetes mellitus only exists when grape sugar is permanently present in the urine. "It is not the quantity, but the persistence of sugar which constitutes diabetes."

When grape sugar is present in the urine, with more or less increase in the urinary flow, it can be mistaken for no other affection.

From Bright's diseases, by the absence of dropsy, and of tube-casts in the urine; the amount of albumin in the urine is never so great or constant in diabetes mellitus as in Bright's disease.

From Diabetes Insipidus, by the absence of sugar in the blood and urine, and the larger quantity of urine voided in polyuria.

Simple glycosuria differs from diabetes glycosuria in that the amount of sugar in the urine is not constant—at one time being present, at another absent—the amount of urine voided is never in excess of health; simple glyco-

suria is a disease of the aged; diabetic glycosuria usually appears under fifty years. Simple glycosuria often results from the inhalation of chloroform, the use of chloral, in the insane, from excitement, or the result of injuries to the head.

Prognosis.—Most unfavorable as regards a cure, it being fairly questionable if complete recovery has ever occurred in a typical case. Still, decided amelioration may take place in the symptoms, and the progress of the malady be greatly retarded where Bovinine is employed. The younger the patient, the more rapid the fatal termination.

Treatment.—In no condition so much as this is a simple nutritious diet indicated; therefore, Bovinine is the ideal food. It should be given in doses from, say a teaspoonful to a wineglassful, from every hour to four hours, in peptonized milk and lime water and continued indefinitely. Good results will invariably follow. Several cures are reported.

DIABETES INSIPIDUS.

Synonyms.—Polyuria; polydipsia.

Definition.—An affection characterized by the habitual discharge of a very large quantity of pale, watery urine, free from albumin and sugar.

Causes.—Occasionally hereditary, or diabetes mellitus may have existed in the parent; more common in children or young adults; men are more liable than women; injuries and diseases of the nervous system; exposure to cold; drinking freely of cold water; fatigue; prolonged debility; malaria; syphilis.

The probable immediate cause of the excessive flow of urine consists in dilatation of the renal vessels, the result of paralysis of their muscular coat, caused by derangement of innervation, as the condition can be induced experimentally by irritating a spot in the fourth ventricle, or by section of portions of the sympathetic nerve.

Symptoms. — The affection is characterized by great thirst, with an increased flow of pale, watery, slightly acid urine, the amount varying from one to five or six gallons in the twenty-four hours. The specific gravity ranges from 1.001–1.007. Sugar and albumin are absent. Urea and the other solids are increased. The appetite is vora-

cious, the bowels are obstinately constipated, and the skin is dry and harsh.

The large flow of urine is usually preceded by various nervous phenomena, as nervousness, irritability, inability to concentrate the mind, vivid imagination, failure of memory, and headache.

Unless the affection is soon arrested, great loss of flesh and strength result.

DIAGNOSIS.—It differs from diabetes mellitus by the absence of grape sugar in the urine.

From paroxysmal diuresis, by the absence of the increased urine permanently.

From interstitial nephritis, by the greater amount of urinary discharge and the absence of albumin, œdema, etc.

PROGNOSIS.—Rather unfavorable as to a radical cure, unless caused by syphilis. Death rarely is due to the diabetes, but to some intercurrent malady that the patient has been unable to withstand, on account of the weakness produced by the diabetes.

TREATMENT.—In no condition so much as this is a simple nutritious diet indicated; therefore, Bovinine is the ideal food. It should be given in doses from a teaspoonful to a wineglassful, from every hour to four hours, in peptonized milk and lime water and continued indefinitely. Good results will invariably follow. Several cures are reported.

CHOLERA.

SYNONYMS.—Epidemic cholera; Asiatic cholera; malignant cholera; spasmodic cholera.

DEFINITION.—An acute, specific, infectious disease, epidemic in the majority of, although endemic in other, localities; characterized by the transudation of serum into the stomach and intestinal canal and violent purging of a peculiar rice-water-like fluid, the persistent vomiting of a similar material, severe muscular cramps, and of a condition of prostration, followed by collapse and death, or of a reaction from the collapse and the development of the typhoid state (cholera typhoid).

CAUSES.—A specific poison, probable the "comma bacillus" of Koch. Cholera is but feebly contagious, in the usual acceptation of that word, but it is unquestionably infectious.

The evidence seems conclusive that the cholera stools are the main, if not the only, channel of infection, and that the great cause of the propagation of cholera is the contamination with the stools of the water used for drinking purposes. Milk may be also the vehicle by which it spreads. Little, if any, danger exists from being in the presence of the infected, although the emanations from the cholera excreta in the atmosphere may generate the disease if swallowed or inhaled. The dead bodies of the cholera subjects apparently possess a slight infective property, the "bacteria of decomposition" probably destroying the cholera germs. One attack does not afford protection against another.

The period of incubation is short, under a week, usually.

PATHOLOGICAL ANATOMY.—This is, as yet, far from satisfactory. The morbid appearances in the majority of cases of death from cholera may be thus summarized: The temperature generally arises after death, the body remaining warm for a considerable time. Rigor mortis rapidly ensues, the muscular contractions being often so powerful as to displace and distort the limbs. The skin is mottled and the body greatly shrunken. The blood is darker in color, thick, viscid, feebly coagulable, and slightly acid. The arteries are quite empty of blood, the veins on the other hand, are distended. The organs are, as a rule, pale and shrunken.

The stomach and intestinal mucous membrane are conjested, and present evidence of extravasations and ecchymoses or are bleached and pale. The stomach and intestines usually contain a quantity of whey-like material, having an alkaline reaction, as well as quantities of cast-off epithelium and the peculiar bacillus. It is thought by many that the stripping-off of the epithelium is a post-mortem phenomena. The Peyer's, solitary and Brunner's glands are usually enlarged and prominent, and occasionally evidences of ulceration are apparent in the solitary glands, and sections placed under the microscope show the "comma bacillus." The villi of the mucous membrane, as well as the epithelium of the small intestines, are stripped of, leaving the basement membrane, for the most part, exposed. The liver is more or less advanced in fatty degeneration presenting a somewhat mottled, yellowish discoloration. The kidneys are congested, the epithelium of the tubules granular and detached from the basement membrane, block-

ing up the tubes. Prof. Bartholow observed, in all his autopsies, "considerable hypaeræmia and dilatation of the vessels of the meddella oblongata. The constancy of this lesion would seem to indicate a relationship between congestion of the meddella and the cramps."

Symptoms.—In accordance with the law of epidemic infectious diseases, the onset, course and character of the symptoms vary in different cases and at different periods in the same epidemic.

The disease may either set in suddenly in a patient previously in good health, or it may follow an attack of rather severe and persistent diarrhœa, with pain, nausea, vomiting and depression. Such cases are termed cholerine, the stools of which are infectious.

In a typical case there are three stages: first, diarrhœa; second prostration; third, collapse; or, in favorable cases, reaction.

First stage. Begins with chilliness, excessive thirst, coated tongue, unpleasant taste in the mouth, slight abdominal pain, and three or four copious, watery, yet fecal stools during the day, and a decided feeling of weakness, the stools rapidly becoming whey-like, easily voided, but with force, and only slight pain.

Second stage. The stools rapidly increase in number, are voided with a rushing force, and consist of many quarts of grayish, or whitish, rice-water fluid, accompanied with forcible vomiting, first of the contents of the stomach, mixed with more or less bilious matter, afterward of the peculiar rice-water-like material; thirst becomes most intense, increasing or diminishing with the variations in the number of the vomiting and stools; severe muscular cramps soon follow, most severe in the calves, although occurring in all parts of the body.

Third stage. The stools, vomiting and cramps continue. The appearance of the patient becomes frightful; the eyes are sunken and surrounded by blackened rings, the nose pinched and pointed, the cheeks hollow, and the lips blue; (facies choerica) the surface cold and moistened with a sticky perspiration; the skin of the hands and fingers have sodden the appearance of the "washerwoman who has washed all day." And if packed up in folds, the fold but slowly disappears. The temperature rapidly falls, the pulse

becomes small and compressible, barely perceptible at the wrist, and the heart-beats are scarcely recognizable. The voice is weak, husky, and sepulchral, (vox cholerica) the tongue is like ice, the breath is cold and icy, the urine markedly diminished and albuminous. The mind is not cloudy, but most patients are apathetic and indifferent to their danger. This, the algid stage of cholera, (cholera asphaxia) usually terminates in death in from three to twelve, twenty-four or fourty-eight hours, but reaction may be established.

Stage of reaction. The temperature of the body rises, the pulse gradually becomes fuller and stronger, the countenance becomes brighter, the stools less frequent, and more fecal, the vomiting decreases, the thirst lessens, the urine increases in amount, but continues albuminous, the patient entering a slow convalescence, or typhoid symptoms develop, the so-called cholera typhoid, which prolongs the recovery for several weeks.

Convalescence is often prolonged and complicated by the development of severe bed sores, boils, bronchitis, pneumonia or parotitis.

Sequelæ.—Suppuration of the parotid gland; painful tetanic contraction of the flexor muscles of the limbs; abscesses or ulcers of the limbs; profuse sweats; roseola, erythema, urticaria, and rarely vesicular eruptions.

Diagnosis.—The epidemic character, and rapid spreading, and great mortality of the affection prevent its being mistaken for any other disease, although isolated cases are often confounded with cholerine or cholera morbus, the points of distinction being few; unless the "comma bacillus" only be found in the stools of true cholera

Prognosis.—Very unfavorable, the mortality ranging from twenty to eighty per cent. The last epidemic in this country was much milder than former ones. The prognosis is controlled by the general condition of the patient, the age, habits and the development of the algid stage; the prognosis being more favorable in those cases which develop gradually than in those in which it reaches its acme at a single bound; the very young or very old, those addicted to the various excesses and surrounded by unfavorable hygienic conditions, are more apt to perish than are others.

TREATMENT.—Drug treatment symptomatic. Bovinine, containing as it does every element of nutrition in proper proportion, requiring little or no digestion, and being stimulating and antiseptic, is by far the best food and tonic employed in this dread condition. It should be given in small doses oft repeated, say twenty drops to a teaspoonsful every half hour to every hour, being preferably given in peptonized milk. Where it has been employed in the treatment of this condition, the course and severity, in the majority of cases, was greatly lessened, and the patient entered the stage of convalescence in better condition than is usual. It should be continued throughout the entire stage of convalescence.

TRICHINOSIS.

SYNONYMS.—Trichinæ; trichina spiralis; flesh-worm disease.

DEFINITION.—A typhoid condition, the result of the entrance of a parasite—the Trichina spiralis—into the intestinal canal, and their subsequent migration into the muscular structure. Characterized by severe gastro-intestinal irritation, severe muscular soreness, and a low typhoid condition.

CAUSE.—The Trichina spiralis are introduced into the human body by eating infected hog's flesh, either raw or but imperfectly cooked.

DESCRIPTION.—The parasite is found in two forms, to wit: intestinal trichina, which is sexually mature, and muscle trichina, which is sexually immature.

The intestinal trichina is a small, hair-like worm, the male measuring 1-18 of an inch, and the female $\frac{1}{8}$ of an inch in length; the head is smaller than the rest of the body; the tail of the male has a bi-loped prominence, between the divisions of which the annal opening is placed, and from which a single spiculum can be protruded; the female has a blunt, rounded tail, the reproductive outlet being situated toward the anterior part of the body; the ova are very small, containing embryos being produced viviparously at the rate of at least one hundred each week after the entrance of the female into the intestinal canal.

The muscle trichina develops its sexual apparatus after it has entered the intestinal canal of the host.

The viable embryos discharged from the female are in a state of motion, and at once migrate from the intestines to the muscular structure of the individual, and here set up inflammatory action, they becoming surrounded by a capsule or shell in which they are coiled.

After a time, in the muscle, the trichina undergoes a further change; lime salts being deposited in and about the capsule and in the parasite itself, when minute specks of lime are seen distributed throughout the muscular structure.

The development of the parasite from the period of impregnation up to the time of sexual maturity, is, under favorable conditions, less than three weeks. Within two days from the ingestion of the infected pork occurs the maturation of the muscle larvæ; in six days more the birth of embryos occurs, and in about two weeks the migrating progeny have arrived at their habitat, the muscular structure.

Symptoms.—These depend upon the number of parasites in the infected food. According to Dr. Sutton, of Indiana, a piece of pork the size of a cubic inch contained eighty thousand trichinæ. There are three stages described, to wit: the intestinal, the migration, and the encapsulation.

Intestinal stage. A gastro-intestinal inflammation, with nausea, vomiting, and a watery diarrhœa, the severity depending upon the number of the parasites ingested.

Migration Stage: A typhoid-like fever, rapid, feeble pulse, profuse sweats, intense thirst, dry tongue and lips, and red, swollen face, with soreness and tenderness of the muscular structure, increased by any muscular act. As a rule, the mind is clear, but decidedly apathetic.

Encapsulation Stage: If the number of parasites ingested have been few, recovery may occur in this stage, but if the number have been large, the gastro-enteritis, fever and muscular phenomena are severe, the patient is in a critical condition, between twenty and fifty per cent. succumbing.

Diagnosis.—Unless the physician has some intimation of the cause, cases are readily mistaken for either ordinary ileocolitis or typhoid fever.

PROGNOSIS.—Depends upon the number of trichina in the pork eaten. Mortality between twenty and fifty per cent.

TREATMENT. — Drug treatment symptomatic. Rest in bed and an absolute Bovinine diet will bring more gratifying and rapid results than anything else employed. It should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

DISEASES OF THE NASAL PASSAGES.

ACUTE NASAL CATARRH.

SYNONYMS.—Acute rhinitis; acute coryza; "cold in the head."

DEFINITION.—An acute catarrhal inflammation of the mucous membrane, lining the nose and the cavities communicating with it; characterized by feverishness, feeling of fullness and discomfort in the head, and attended with discharges of fluid, watery mucous, or muco-purulent in character.

PATHOLOGICAL ANATOMY. — Hyperæmia of the mucous membrane, attended with redness, swelling and deficient secretion. This tumefaction is partly increased by an œdematous infiltration, causing a quantity of colorless, salty and very thin liquid to flow from the nose. This secretion soon assumes the character of thick, tenacious mucous or muco-pus, due to the desquamation of the epithelium of the nasal mucous membrane, and a copious generation of young cells, the hyperæmia and the swelling of the membrane diminishing.

The respiratory portions of the nasal fossæ are more markedly affected than are the olfactory.

Rarely, and then in new-born infants and those affected with the eruptive fevers, the exudation in the nasal passages is of a fibrinous nature, somewhat similar to that observed in diphtheria.

CAUSES.—Atmospherical changes are the most frequent and influential. Exposure of the neck to a draught of cold air, or of the feet and ankles to cold and dampness, or changing from a warm to a cold atmosphere suddenly, are among the most usual causes.

Irritating gases and vapors, dust, certain powders, as ipecac and tobacco, excite an irritation of the nasal mucous

membrane. The scrofulous taint and the rheumatic diathesis seem to render the mucous membrane susceptible to frequent attacks.

Acute coryza is usually present in the initial stage of measles and influenza.

Epidemic influence occasionally prevails on an extensive scale. The poison of syphilis or the use of the iodide of potassium not unfrequently act as exciting causes.

At times the catarrh seems to spread by contagion.

Symptoms.—"A cold in the head" is usually preceded by a feeling of lassitude or weariness and more or less frontal headache; then occur irregularly chilly sensations in the back, followed by more or less feverishness and an uncomfortable feeling of dryness in the nares, with a strong inclination to sneeze. This is soon followed by an abundant watery and saline discharge, which is continually dripping from the nostrils, or occasions an attack of sneezing, followed by blowing the nose, which relieves the congested and swollen membrane for a few moments. The relief is temporary, however, the fullness of the head and difficult, obstructed nasal respiration rapidly returning. The anterior nares are red and inflamed, and the eyes red and suffused with tears, through partial or entire closure of the tear ducts. The discharge soon assumes a purlent character. The voice has a peculiar tone, rather nasal and muffled in character. Within a few days the swelling subsides, the secretion lessens, health being restored in about ten days from the beginning of the attack.

When the attack has almost terminated, hard crusts may form within the nostrils, either on the septum or turbinated bones, which are with difficulty expelled by blowing the nose.

Complications.—Irritation and swelling of the upper lip, from repeated blowing of the nose and the constant contact of the irritating discharge.

Extension of the catarrh to the ethmoid or sphenoid cavaties or frontal sinus, causing increased and severe frontal headache; or to the antrum of Highmore, causing tenderness over one or both cheeks.

Extension to the Eustachian tube and middle ear, causing impaired hearing; or to the pharynx or larynx, causing cough.

DURATION.—In mild cases about one week; severe cases continue, more or less marked, for two weeks.

PROGNOSIS.—Favorable if early and proper treatment be instituted; if neglected, the catarrh tends to become chronic. In very young infants, if the catarrh is not rapidly relieved, loss of flesh and strength occur, from inability to take the breast.

TREATMENT. — Drug treatment symptomatic. In acute irritations of the mucous passages, it is wise to have your patient take as little food as possible which requires complete digestion. At the same time thorough nutrition of the patient is necessary. Bovinine furnishes full nutrition, and at the same time gives the alimentary tract rest. It should be given in this condition in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, to the exclusion of all other foods during the attack.

CHRONIC NASAL CATARRH.

SYNONYMS.—Chronic rhinitis; chronic coryza.

DEFINITION.—A chronic inflammation of the mucous membrane lining the nasal passages, with more or less alteration of structure; characterized by a sensation of fullness in the nares, increased secretion and a perversion of the special sense of smell and of hearing.

CAUSES.—The result of repeated attacks of the acute variety; inhalation of irritating vapors and dust; syphilis and scrofula.

PATHOLOGICAL ANATOMY.—The mucous membrane of the nares is thickened, of a dark red, sometimes grayish color, the superficial veins dilated and varicose, often forming polypoid enlargements. In many cases there is ulceration of the structure, with more or less loss of substance; the secretion is thick, tough, of a greenish character, and often very fetid; large collections of dried mucous are often formed upon the turbinated bones and septum.

SYMPTOMS.—A feeling of fullness in the nares, increase of the secretion, the character being thick and greenish, which, dropping posteriorly into the pharynx, causes paroxysms of "hawking," which are more marked in the morning immediately after rising. The special sense of smell is or more or less impaired, and in many cases entirely

abolished; the special sense of hearing is more or less diminished, from the extension of the inflammation to the Eustachian tubes; the voice has a peculiar nasal intonation. An almost constant dull frontal headache, associated with a feeling of weight, showing an extension of the disease to the infundibulum and frontal sinus.

Sudden changes of temperature cause acute exacerbation of these symptoms, when there is superadded difficult nasal respiration.

If ulceration of the nares occur, the discharge has a fetid odor. This condition is termed ozæna.

From extension of the inflammation to the nasal duct or its obstruction, the tears flow over the malar eminence (epiphora), leading to more or less congestion of the eyes.

Diagnosis.—Hypertrophy of the turbinated bones and nasopharyngeal cartarrh are constantly misnamed chronic nasal catarrh. The rhinoscope readily derermines the diagnosis.

Prognosis.—Permenent cure is seldom obtained, the disease being so decidely chronic and obstinate, the treatment is of neccessity protracted, and the majority of patients tire of it before a complete cure is effected.

Treatment.—Drug treatment as may be indicated. As a tonic Bovinine should be given in from a teaspoonful to a wineglassful every two to four hours. The nasal passages should be cleaned out and treated one to three times in twenty-four hours in the following manner: Bovinine pure should be sprayed in, followed immediately by Hydrazone, and when reaction ceases the passages washed out with Thiersch solution and Bovinine pure sprayed in. This brings about a healing and regeneration of the mucous membrane in a more rapid and complete manner than anything else employed. It should be used also as a gargle, one-third Bovinine and two-thirds normal salt solution, from every two to three hours.

DISEASES OF THE PHARYNX.

ACUTE CATARRHAL PHARYNGITIS.

Synonyms.—Catarrhal tonsillitis; angina catarrhalis; acute "sore throat."

Definition.—An acute catarrhal inflammation of the mucous membrane of the tonsils, uvula, soft palate and

pharynx; characterized by rigors, fevers, painful deglutition, coughing, or constant desire to clear the throat, with a more or less decided nasal intonation of the voice.

Causes.—Exposure to cold and damp; swallowing hot fluids or food; during the prevalence of scarlatina, measles or variola.

Pathological Anatomy.—The mucous membrane and submucous tissues of the uvula, soft palate, fauces, tonsils and pharynx are congested, red and swollen, the secretion is at first lessened or entirely arrested; later it is increased, but of a thick, tenacious, opaque character. The swelling is most evident at the uvula, due to the amount of relaxed sub-mucous tissue, which is especially thick and long, often resting on the root of the tongue ("the palate is down").

Frequently one or both tonsils are swollen to such an extent that the fauces are completely occluded, and the condition is mistaken for the graver phlegmonous tonsillitis.

In severe attacks of catarrhal angina, white or grayish-white membranous masses form in small, irregular, roundish spots on the redened mucous membrane of the tonsils, soft palate and pharynx, causing the affection to be frequently mistaken for diphtheria.

Symptoms.—The onset is usually sudden, with rigors, fever, thirst, headache, loss of appetite, coated tongue, bad taste, foul breath, dryness in the throat, painful deglutition, and constant desire to clear the throat, due to the increased length of the uvula; as the inflammation proceeds, the secretions are increased, the fluid often filling the mouth and also causing a constant desire to swallow, each act being associated with acute pains. Not unfrequently earache adds to the patient's distress, from extension of the "catarrh" to the Eustachian tubes and tympanum.

In severe attacks of catarrhal pharyngitis, cases which, from the intense hyperæmia, have been termed erysipelatous or erythematous pharyngitis, the muscles of the palate are infiltrated with serum, which greatly interferes with their function. Under normal conditions the contraction of the muscles of the anterior half arches of the palate prevents the return of the food and drink into the mouth; while the contraction of the muscles of the pos-

terior half arches, together with the uvula, closes the passage to the nose; if the function of these muscles be impaired, fluids would be driven through the nose or back into the mouth by the contraction of the pharynx in the act of deglutition.

In all affections of the pharynx a nasal tone is pathognomonic, especially if the muscles of the half arches are interfered with.

Varieties.—Exanthematous Pharyngitis is the form of the affection complicating the acute infectious diseases, such as scarlatina, measles and smallpox.

Erysipelatous Pharyngitis is the form complicating facial erysipelas; rarely, however, the affection begins in the pharynx, spreading to the face and other parts.

Gangrenous Phargygitis may occur with diphtheria, scarlatina, erysipelas, smallpox and typhoid fever. The symptoms assume a typhoid (depressed) character, the termination being usually fatal.

Phlegmonous Pharyngitis is the variety in which is present an accumulation of pus in the submucous and deeper tissues of the pharynx, constituting a retro-pharyngeal abcess. This variety of pharyngitis may follow the penetration of a sharp piece of bone or be secondary to caries of the cervical vertebræ.

Tibrinous Pharyngitis, or, as it is sometimes termed, pseudo-membranous, is considered with croup and diphtheria, of which it constitutes a part.

Diagnosis.—On account of the great swelling of the tonsils, it may be mistaken for acute tonsillitis; but the mild inflammatory symptoms should prevent the error.

Cases with membranous deposits on the tonsils, soft palate and pharynx, are no doubt often misnamed diphtheria; the marked difference in the constitutional symptoms should prevent the error.

Prognosis.—Favorable, the affection terminating in three or four days by the raising of a quantity of thick. opaque mucous.

Treatment.—Drug treatment symptomatic. As a tonic Bovinine should be given from a teaspoonful to a wineglassful every two to four hours. The nasal passages should be cleaned out and treated once to three times in twenty-four hours in the following manner: Bovinine

pure should be sprayed in, followed immediately by Hydrazone, and when reaction ceases, the passages washed out with Thiersch solution and Bovinine pure sprayed in. This brings about a healing and regeneration of the mucous membrane in a more rapid and complete manner than anything else employed. It should be used as a gargle, one-third Bovinine and two-thirds normal salt solution from every two to three hours.

ACUTE TONSILLITIS.

Synonyms.—Amygdalitis; quinsy; phlegmonous pharyngitis.

Definition.—An acute parenchymatous inflammation of one or both tonsils, with a strong tendency toward suppuration; characterized by moderate fever, pain in the throat, a constant desire to relieve the throat, painful and difficult deglutition, impeded respiration and more or less muffiing of the voice.

Causes.—Generally attributed to exposure to cold, but in the majority of cases, the exposure is so slight that there must be a predisposition to the affection; for persons once affected are particularly prone to repeated attacks upon the slightest exposure.

Pathological Anatomy.—One or both tonsils will be seen (on inspection) to project from its bed, as a rounded, deep red body, which may even extend beyond the median line, when they may entirely occlude the isthmus of the fauces; the half arches and posterior border of the soft palate are reddened and somewhat swollen. The surface of the tonsils is often covered with small, yellowish points, which closely resemble patches of false membrane, but careful inspection will show that they are beneath the mucous membrane, being only the distended follicles of the gland. The mucous membrane of the fauces and pharynx is more or less red and swollen.

Symptoms.—Onset more or less sudden, with rigors, rise in temperature, 102° to 104° F., full, frequent pulse, 100 to 120, headache, thirst, pain and swelling at the angle of the jaw, with a constant desire to clear the throat, difficult and painful deglutition, from the enlarged tonsils almost

closing the fauces, when the respiration is more or less impeded; the voice is more or less muffled, and attempts at phonation increase the pain.

Darting pains along the Eustachian tubes are of frequent occurrence, the patient complaining of earache and more or less deafness.

If suppuration be imminent, the throat becomes more painful, the character of the pain throbbing, the febrile phenomena increase, with more or less depression, the symptoms seeming to be of great danger, when suddenly, after an effort at vomiting or spontaneously, the tonsillar abscess bursts, a quantity of pus escapes from the mouth, and prompt relief follows.

Duration.—The disease lasts from three to seven days, terminating either by suppuration or the gradual resolution of the enlarged glands.

Diagnosis.—Tonsillitis can hardly be mistaken from any other affection, if the fauces are inspected.

Prognosis.—In the majority of cases the result is favorable, it very rarely proving fatal, except in children, and only then by obstructing the respiration, and, at the same time, so seriously interfering with nutrition that the child's strength fails.

Treatment. — Drug treatment symptomatic. In this condition. the throat being so sore that swallowing is most painful, Bovinine should constitute the complete diet until the tonsils have receded. It should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient. It should be employed also as a gargle, one-third Bovinine and two-thirds normal salt solution, from every two to three hours.

DISEASES OF THE LARYNX.

ACUTE CATARRHAL LARYNGITIS.

Synonyms.—Catarrhal laryngitis; "sore throat."

Definition.—An acute catarrhal inflammation of the moucous membrane of the larynx; characterized by feverishness, diminished or suppressed voice, painful deglutition, and more or less difficulty of respiration.

Causes.—Atmospherical changes; cold draughts of air whether directly inspired or exposure of parts or all of the

body to the same. Cold, wet feet; inhalation or irritating vapors, such as gas, smoke or ammonia; inhalation of dust. Prolonged efforts at public speaking or singing or the same efforts under difficulties. In children, from violent fits of crying.

Pathological Anatomy.—In mild cases there is a transient congestion (hyperæmia) of the mucous membrane over the entire, but more commonly circumscribed, portions of the larynx, with more or less swelling and dimished secretion; the mucous membrane soon returns to its normal condition, the secretion being slightly increased.

Symptoms.—The attack begins rather suddenly with a feeling of dryness, rawness, and tickling, referring to the larynx, with the sensation of the presence of a foreign body in the throat, and with hoarseness and a disposition to cough. Deglutition causes pain by the upward movement of the larynx and by the pressure of the food on the larynx as it passes along the gullet.

Attempts at speaking are attended with more or less distress and the larynx is tender on pressure.

Coughing, from the onset, of a noisy, harsh, hoarse, or toneless character and the act of coughing attended with a sensation of scratching in the larynx. The first day or two there is a scanty expectoration, but in a short time the secretion is increased, giving the cough a loose character. In the early stages, the sputa may be slightly streaked with blood. Rarely a hemmorrhage occurs from the mucous membrane of the larynx. The voice is first decidedly hoarse, soon followed by complete aphonia. The respiration is but slightly, if at all, affected in adults. There may character, but its duration is always shortened. Expiration be more or less febrile reaction. In children the onset is with fever, white coated tongue, frequent tense pulse, hot skin, and flushed face, embarrassed respiration; the voice hoarse and whispering with harsh, ringing, croupy cough and great restlessness. During the night the child is subject to suffocative attacks (laryngismus stridulus).

Laryngoscopic appearances. These vary with the severity of the attack and the stage of the inspection. In mild cases, at an early period the mucous membrane presents a bright red appearance. Severe cases present, in addition to the bright redness, the mucous membrane swollen, to

such an extent at times as to conceal the vocal chords, they appearing only as a slendor threads of a reddish tint. At times the mucous membrane presents the appearance of erosions or ulcerations, due to a desquamation of the epithelium.

Duration.—Usually about one week; if very severe, two or three weeks may elapse before the larynx returns to its normal condition.

Prognosis.—Simple catarrhal laryngitis never terminates fatally.

Treatment.—Drug treatment symptomatic. As a tonic Bovinine should be given from a teaspoonful to a wineglassful every two to four hours. The nasal passages should be cleaned out and treated once to three times in twenty-four hours in the following manner: Bovinine pure should be sprayed in, followed immediately by hydrazone, and when reaction ceases, the passages washed out with Thiersch solution and Bovinine pure sprayed in. This brings about a healing and regeneration of the mucous membrane in a more rapid and complete manner than anything else employed. It should be used as a gargle, one-third Bovinine and two-thirds normal salt solution from every two to three hours.

ÆDEMATOUS LARYNGITIS.

Synonym.—Ædema of the glottis.

Definition.—An acute inflammation of the mucous membrane of the larynx and that about the glottis, with an infiltration of the areolar tissue by a serous, sero-purulent or purulent fluid; characterized by obstructed or stridulous breathing and dysphonia or aphonia.

Causes.—The result of acute laryngitis; abcess in or about the throat or tonsils; erysipelas of the face; scarlatina; smallpox; Bright's disease. Rare in children.

Pathological Anatomy.—Infiltration into the loose connective tissue of the ary-epiglottic folds, the glosso-epiglottic ligament, the base of the epiglottis, and the interarytenoid space. If the true vocal chords are inflamed, their color changes, and instead of appearing white, glistening and brilliant, they are dull, grayish-red or violet-red in patches. If the swelling be the result of purulent infiltration, the parts affected present a deeply congested color, with here and there spots of a yellowish hue.

Serous infiltration, sufficient to cause fatal œdema, disappears with death, leaving but slight traces to account for the formidable symptoms.

Symptoms.—The onset is much the same as a simple catarrhal laryngitis, with a gradually increasing impediment to the respiration. The patient experiences the sensation of a foreign body in the throat, and after a short time a difficulty of breathing, which ultimately threatens suffocation. The deglutition is rendered difficult, owing to the swelling of the epiglottis; the voice, at first muffled, gradually becomes weaker and weaker, until finally it is almost extinct; the cough at first is dry and harsh, but as the infiltration increases it becomes stridulous and suppressed; there is no expectoration except that, after great effort to clear the throat, a little frothy mucus is raised. The difficulty of respiration, as the disease progresses, becomes greater and greater, and the paroxysms of impending suffocation more frequent. The inspiration is accompanied by a whistling sound, characteristic of the narrow condition of the glottis, the patient sits up in bed, his mouth open, gasping for breath, his eyes protuding, the whole body trembling with intense convulsive movements, and after a time a general cyanosis commences, the face assuming a bluish hue, all these symptoms continuing for a few moments, when slight relief occurs, to be again followed by another paroxysm, in one of which, if nature or art does not afford prompt relief, death occurs from asphyxia.

A physical examination of the parts may be made by gently passing the finger into the throat, when the epiglottis may be felt very much thickened, and the ary-epiglottis folds may have attained such tumefaction as to convey to the finger an impression similar to that which is given by touching the tonsils.

Laryngoscopic appearance. The mucous membrane has a bright red appearance. The epiglottis has the appearance of a semi-transparent, roll-like body, or it is often merely erect and tense. It is this condition of the epiglottis which explains the pain and difficulty in deglutition. Rarely the vocal cords are infiltrated.

Diagnosis.—Any disease which gives rise to dyspnœa may simulate œdematoies laryngitis, but the history of the

case and the laryngoscopic examination will generally furnish conclusive evidence as to the real nature of the malady.

PROGNOSIS.—As a rule unfavorable. If early and vigorous treatment be instituted, recovery is possible, but without it death is the inevitable result, the patient dying asphyxiated. Even when local measures have removed the obstruction to free respiration, the patient is very likely to perish subsequently from exhaustion or blood poisoning, or from pneumonia or other lung complication. The duration of infiltration of the larynx varies from a few hours to several days.

TREATMENT. — Drug treatment symptomatic. In this condition, swallowing being at best most difficult, Bovinine forms an ideal food. It should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

SPASMODIC LARYNGITIS.

SYNONYMS.—Spasmodic croup; false croup; catarrhal croup; child-crowing.

DEFINITION.—A catarrhal inflammation of the mucous membrane of the larynx, associated with spasmodic contraction of the glottis; characterized by paroxysmal coughing, difficulty of breathing and attacks of threatening suffocation.

Mackenzie describes it as "a form of convulsion occurring in ill-nourished infants, characterized by spasmodic action of the abductors of the vocal cords, and in severe cases by spasm of the diaphragm and intercostal muscles."

CAUSES.—Delayed or difficult dentition; excesses in eating and drinking; excitement; violent emotion and atmospherical changes, are all given as causes for simple croup. It is often hereditary.

PATHOLOGICAL ANATOMY.—Congestion of the mucous membrane of the larynx, with slight swelling and deficient secretion, are the only changes that have thus far been noted.

SYMPTOMS.—The attack occurs chiefly during the night, the child on retiring having either its usual health, or, perhaps being a little feverish. After several hours of sleep the child is suddenly awakened by a paroxysm of

suffocation, dry, harsh, ringing cough. After half an hour or an hour or two the breathing becomes easier, the cough less "croupy," the skin is covered with more or less perspiration, and the child falls asleep. The next day there is present cough of loose character, the respiration being about normal. If no treatment be instituted, the same phenomena occur on the second night, the child being apparently well during the second day, the cough being less in amount; phenomena of a similar character, but of much less severity, are present third night, after which the disease usually disappears.

If the symptoms of the first paroxysm continue pronounced for two or three days, there is a strong probability that the inflammation may become fibrinous in character, or that true croup may develop.

Diagnosis.—The symptoms are so characteristic that it seems impossible for the affection to be mistaken for any other disease.

Prognosis.—Spasmodic or simple croup always terminates favorably.

Treatment.—Drug treatment symptomatic. Generally the little patients who suffer with this condition are subject to malnutrition or anæmic, therefore, following an attack they should be put on Bovinine in doses from five drops to a teaspoonful every hour to three hours in milk, and continued indefinitely.

CROUPOUS LARYNGITIS.

Synonyms.—Membranous croup; true croup.

Definition.—An acute inflammation of the mucous membrane of the larynx, attended with the exudation of a tough secretion—the false membrane—and the occurrence of spasm of the glottis; characterized by febrile reaction, frequent ringing cough, dyspnœa, with loud inspiratory sound, and altered or extinct voice, showing a strong tendency toward death by asphyxia.

Causes.—A disease of childhood, most common in strong, vigorous, well-nourished males. Certain families present a strong hereditary tendency. Most common during a humid winter.

We cannot assent to the dictum of some authorities, that laryngeal diphtheria and croupous laryngitis are identical.

Pathological Anatomy. — Intense hyperæmia of the mucous membrane of the larynx, associated with swelling, œdema and marked redness. There soon appears on the surface of the mucous membrane a grayish pellicle, rapidly coalescing and becoming thicker—the opaque, false membrane—which differs in extent, thickness and adhesiveness in different portions of the larynx. In all cases the false membrane is found on the vocal cords and inner surface of the epiglottis. The first exudation (membrane) softens by the serum which is exuded, and is then mechanically dislodged by acts of coughing or vomiting, but is followed by successive deposits upon the mucous membrane.

When the false membrane is detached, the mucous membrane of the larynx is found unaffected, so far as the loss of structure is concerned. Several successive crops of membrane map occur after the detachment, or it may entirely cease to form after the removal of the first exudation.

On microscopical examination, the false membrane is found to be composed of a fine network of fibrillæ, holding in their interstices leucocytes of an albuminous or fibrinous nature.

The false membrane may extend into the pharynx, but especially is it liable to extend into the trachea and bronchial tubes, and, as the inflammation extends downward, the character of the exudation changes from fibrinous to muco-purulent.

Symptoms.—The onset of "true croup" is either suddenly, by an attack of spasmodic croup, or gradually, as an acute catarrh of the larynx, rapidly increasing in severity, with a feeling of heat in the throat, huskiness of the voice, harsh cough, fever and thirst, the hoarseness soon becoming marked, and the cough having a metallic, "croupy" character, rapidly changing to a stridulous, husky sound; every few minutes the child takes a sudden, deep, stridulous inspiration, the voice becoming more and more husky. Difficulty of breathing now follows, the child is unable to lie down, or if, exhausted by the efforts at inspiration, it is quiet for a moment, it soon starts up in fright, breathing more heavily, with a shrill, whistling inspiration. Soon, from the narrowing of the glottis, from the presence of the membrane, the expiration becomes

difficult and noisy, and suffocation seems imminent, from the paroxysmal attacks of spasm of the glottis, when the child tosses wildly about, tears at its throat, as if to remove some obstacle, the face becoming cyanosed, the alæ of the nose working rapidly, the mouth wide open, the inspiratory efforts gasping, the body covered with a profuse sweat, and death seems imminent, when the spasm is relaxed, air enters the chest, the breathing becomes somewhat easier, and the child, exhausted and partially stupefied, drops into a fitful sleep of a few moments' duration.

The suffocative attacks return at short intervals, or there occur decided remissions between them, considerable portions of the false membrane being expelled, when the child falls into a refreshing sleep.

In those cases which tend to a favorable termination, the appearance of improvement noted between the suffocative attacks is maintained, the paroxysms of suffocation becoming less frequent, the exportoration of membrane more marked, the difficulty of breathing lessens, the cough looser, the voice gradually returning, the fever, which has been more or less high during the attack, disappearing.

If, instead of improvement, the case tends toward a fatal termination, the suffocative attacks become more frequent expectoration is absent, the voice and cough inaudible, although the efforts at speaking and coughing are visible, the difficulty of breathing continues, the respirations becoming more frequent and shallow, but without whistling and stridor, cyanosis deepens, the countenance has an indifferent, drowsy and stupid look, the eyes dull and nearly closed, with symptoms of depression, the pulse rapid and week, the surface covered with a cold, clammy sweat, the extremities cold, stupor and insensibility more marked, the child dying of carbonic acid poisoning or asphyxia.

Duration.—The duration of true croup is about one week, rarely continuing ten days.

Diagnosis.—Œdema of the glottis may be mistaken for croup until the period of the formation of the characteristic membrane. The chief points of distinction from the onset are, however, absence of fever, paroxysmal attacks of diffcult respiration, followed bv a complete return to the normal condition.

Laryngeal diphtheria differs from true croup in its history, its epidemic character, the marked depression, even

before obstruction of the larynx produces imperfectly ærated blood, the presence of albumen in the urine, and the sequelæ.

Prognosis.—A very fatal disease. The danger is great in proportion to the age and feebleness of the child.

The unfavorable symptoms are: Loud, stridulous, inspiratory and expiratory sounds, laborious and prolonged expiration, depression of the base of the thorax during inspiration, whispering voice or complete aphonia, congestion of the face and neck, stupor, weak, rapid and irregular pulse, cold extremities, and a cold, clammy perspiration.

The favorable symptoms are: Expectoration of false membrane, decrease of the stridulous respiration, voice changing from whispering to hoarseness, looseness of the cough, moderation of the fever, and an improvement in the general condition.

Treatment.—In this distressing condition, the little sufferer is better nourished on Bovinine than anything else and shows a more rapid and general improvement. It should be given from five drops to a teaspoonful every hour to three hours. In severe cases the Bovinine may be employed locally, as directed in the treatment of diphtheria.

LARYNGISMUS STRIDULUS.

Synonyms.—Spasm of the glottis; pseudo-croup; "Kopp's asthma.'

Definition.—A temporary spasm of the muscles of the larynx innervated by the inferior or recurrent laryngeal nerves; characterized by a sudden development of dyspnœa and the appearance of deficient oxygenation of the blood.

Causes.—Most common in children, the result of teething laryngitis, indigestion, scrofula or other cachexia. Attacks in adults are not uncommon.

Pathological Anatomy. Death the result of spasm of the glottis is such a very rare occurrence that the changes in the larynx are illy understood.

The mechanism consists in an irritation of the superior laryngeal nerve—the efferent nerve—whose function is to supply the mucous lining of the larynx with sensibility, which is reflected through the inferior laryngeal nerve—the efferent nerve—the motor influence resulting in the spasm of the laryngeal muscles.

Symptoms.—The spasm of the laryngeal muscles is of sudden onset, and usually after nightfall. The child may have been in perfect health, to all appearances, on retiring, or it may have shown symptoms of catarrh of the upper air passages, or been suffering from gastro-intestinal or dental irritation.

The child awakens suddenly, coughing in a metallic, resonant tone—the croupy cough—and with great dyspnœa, with loud, crowing, stridulous inspirations, the result of narrowing of the larynx from spasm, with wheezy, stridulous expirations.

The entrance of air is so greatly obstructed that all the accessory muscles of respiration are called into use, the lips and finger nails become blue, the surface cold, the the countenance anxious, and the inferior portion of the chest is drawn in, instead of being expanded, during inspiration. General convulsions occur at times, during a paroxysm, also strabismus, and involuntary discharge of the fæces and the urine.

The paroxysm continues from half an hour to an hour or more, to return after a few hours' sleep, or during the following night; the cough, during the day, has a croupy character.

Diagnosis.—The non-febrile and distinctly intermittent nature of the affection differentiates it from croup, and its own distinctive characters, from all other diseases.

Prognosis.—Favorable. Death from suffocation during the paroxysm may occur in very young children, but it is certainly a rare termination.

Treatment. — This condition is usually the result of teething, indigestion, scrofula or cachexia. Therefore, the physician would, in a large measure prevent its development by putting his little patients that presented such conditions on Bovinine, in doses from five drops to a teaspoonful, from every hour to three hours, according to the age and condition of the patient. This should be continued indefinitely.

BOVININE IN CATARRHAL DISEASES.

CHRONIC ULCERATIVE CATARRHAL RHINITIS.

By Dr. T. J. Biggs, New York.

L. Hecox; aged 36; first seen April 2d, and on May 12th discharged, cured of a chronic ulcerative rhinitis, of aggravated character and long standing. The remote cause had been syphilis; had been treated by several prominent specialists with the utmost modern methods and slight temporary relief, followed every time by return to a worse condition than ever. When the case came into my hands, the sense of smell was entirely destroyed, and that of hearing nearly so. The stench of his breath was something tremendous. The disease had invaded the pharynx, extended to the vocal chords, and affected the voice. There was constant dull frontal headache, profound anæmia, and 30 pounds weight had been lost in the last six months.

After three days of treatment, above referred to, the headache had ceased, the discharge was diminished, and from the very first application the intolerable stench of the breath disappeared. By May 12th the patient had gained 14 pounds, the ulceration had healed throughout, the discharge had ceased, there was no more headache, the senses of smell and hearing were restored.

CHRONIC NASO-PHARYNGEAL CATARRH.

By Dr. T. J. Biggs, Sound View Hospital.

Carlo W——; age 30; January 1st, 1898; well-defined case, with complete loss of hearing in the right ear, due to extension of the catarrhal influence into the Eustachian canal. Twice a day, after having thoroughly cleansed out the passages by dropping in peroxide-on-Bovinine and washing it out with Thiersch solution, he was directed to spray in pure Bovinine.

On January 12th, he had not had any mucous for three mornings, and the air passages seemed to be in a normal condition. On the 21st, the Eustachian catarrh was cured, and hearing perfectly restored. On the 26th, examination showed a complete restoration of the normal condition in all respects.

CHRONIC ULCERATION CATARRH.

By Dr. T. J. Biggs, Sound View Hospital.

Will H——, Stamford, Conn.; age 24; March 12th, 1899; diagnosis, chronic Rhinitis. Patient had just returned from New York, where he had taken a three-weeks' course of treatment under a specialist, but had gained little benefit. An examination of nares showed the mucous membrane thickened, and of a dark red color; the superficial veins were dilated and varicosed, forming small points of ulceration here and there; the secretion was thick, tough and of a greenish color, and very fetid; large collections of dried mucous were formed upon the turbinated bones and septum. He complained of a feeling of fullness in the nares and increase of secretion, which dropped into the pharynx, causing paroxysms of hacking and sometimes vomiting, more marked in the morning immediately after rising. The sense of smell was entirely abolished; hearing greatly impaired; voice had a peculiar nasal tone, and his breath was so foul that he had been asked to give up his position, and had to lead almost a hermit's life. So severe had been the strain upon his nervous system, being of a very sensitive nature, that he was in a highly neurotic and debilitated condition. He was put to bed, Bovinine, a wineglassful in milk every three hours, was prescribed, and a very light diet. Every two hours his nares and throat were depurated with Bovinine and hydrozone, washed out with Thiersch solution, and Bovinine pure was sprayed in. March 20th, his general condition was much improved, as well as the rhinitis. At this time there was only little secretion, not much odor, and he could breathe with considerable comfort. March 29th, the points of ulceration had entirely healed, the discharge had subsided, the breath was sweet, and his general condition greatly improved, having gained seven pounds in weight. April 8th, he was discharged, absolutely cured.

ULCERATIVE OTITIS AND NASO PHARYNGEAL CATARRH.

By Dr. J——, New York.

John Haynes; age 16; May 10th, 1897; suppurative inflammation, with severe ulceration in the middle ear; hearing entirely destroyed; had been treated for six months, at five institutions, by some of the best specialists, without any apparent result. Under thorough use of all

the most approved applications and nutrients, the condition improved somewhat for a few days and then got worse again. I became much discouraged. But on the 21st I was persuaded by a professional colleague to try Bovinine treatment. A decided improvement began after the second day, and continued without any relapse until the patient was discharged, June 18th; the ulcerations being entirely healed, the inflammation having completely subsided, and the hearing already almost normal. The results attained by me in this case with Bovinine have been so thoroughly satisfactory that I shall continue to employ it in all other cases.

OLD CHRONIC NASO-PHARYNGEAL CATARRH.

By Dr. J——, New York.

John Bostwick; age 22; June 10th, 1897; old chronic case, anterior nares showing three distinct points of ulceration; the posterior nares tremendously hypertrophied, occluding the passages almost entirely; tonsils hypertrophied; fauces covered with points of ulceration; large accumulations of fitid mucus, and breath so foul that he never went anywhere among others; had been treated by several of the best specialists, with but slight and temporary relief. In my judgment, an operation was indispensable, and I so advised; but he refused to submit to any operation whatever. My former success with Bovinine encouraged me to try it, spraying into the nasal passages and throat, following it with a spraying of peroxide, and then washing out the product with Thiersch. The patient was directed to apply iodoform-Bovinine with a medicine-dropper, and to swab the throat with the same three times a day, and return every morning for the Bovinine-peroxide treatment. July 17th, all points of ulceration were healed, and the patient was relieved of the distressing accumulation of mucus. The sense of smell was regained, and the hearing almost entirely restored.

ULCERATIVE SEVEN-YEAR CATARRH.

By Dr. J——, New York.

Ed. Rushby; age 22; July 22nd, case of seven years' standing; ulceration on both sides of septum. Bovinine and paroxide of hydrogen sprayed in, thorough washing out the incrusted accumulations. Bovinine pure was then

sprayed in all passages three times a day, with repeated depurations. In about a week (July 30th) all the points of ulceration were healed, and the passages thoroughly opened for use, with very little of unnatural secretion. Last seen August 14th, in a quite normal condition.

ULCERATIVE NASO-PHARYNGEAL CATARRH.

By Dr. J——, New York.

Annie Bemis; aged 32; came under my care May 10th, 1897, the same day with the former case; catarrh, with ulceration of the passages, and an ulcer behind the left tonsil; had received the approved modern treatments, without success; large accumulations of mucus and hardened scabs being daily coughed up, with the other usual symptoms of a severe case.

After two weeks' trial of the usual treatments, as in the former case, and with like negative results, the striking success of the Bovinine treatment on that case had just then become apparent, and accordingly, on May 24th, I began the new treatment, which was continued, the patient improving daily, without any backset, until discharged, June 26th. The senses of smell and hearing were then almost normal, the ulcerations were entirely healed, and the discharges had ceased.

OLD CHRONIC CATARRH AND ULCERS.

By Dr. J——, New York.

George Carter; age 32; August 12th, 1897; case of many years' standing, and many ineffectual treatments of the ordinary kinds; large masses of hypertrophied tissue, and in the throat five distinct ulcers. I removed portions of hypertrophied tissue, the passages and throat were thoroughly cleansed, and a spray of Bovinine was used every two hours. In one week all the ulcers in the throat were entirely healed, and the cut surfaces in the passages were half covered with healthy skin. August 7th, the patient was discharged.

CHRONIC ULCERATIVE CATARRH.

By Dr. J——, New York.

Ann Thompson; age 30; June 14th, 1897; bad old case, like the rest—ulcerations, etc.; last resort, as usual, after all treatments in several institutions. Passages filled with

hard crusts and scabs, which were now dissolved and washed out with the Bovinine-peroxide reaction, and pure Bovinine applied thrice a day. July 17th, the discharge of mucus had been reduced nearly to normal quantity, the headache had been entirely relieved, and the sense of smell was measurably restored.

CHRONIC ULCERATIVE CATARRHAL RHINITIS.

By Dr. B——, New York.

Eddie Judson; age 23; September 12th, 1897; many treatments had all failed; symptoms of a well defined case, besides several points of ulceration, with a considerable loss of structure; profuse, thick, tough, greenish-colored and fitid-smelling secretion. Under usual technique of Bovinine treatment, October 10th, all symptoms had been removed, and the patient was discharged. Seen again twice, to November 17th; continuing well.

CHRONIC CATARRH.

By Dr. T. J. Biggs, New York.

Ethel Strobel; age 29; May 3rd, 1897; naso-pharyageal catarrh of long standing; had been treated by various specialists at many clinics; the passages covered with hard crusts, with points of ulcerations; severe headache, almost constant.

Treatment as already described, and spray of Bovinine and salt water every two hours. In ten days the abnormal secretion almost ceased, and the constant catarrhal headache had entirely disappeared. When last seen, June 14th, the ulcerations were entirely healed, and the passages looked healthy.

CHRONIC ULCERATIVE NASO-PHARYNGEAL CATARRH.

By Dr. T. J. Biggs, Sound View Hospital.

Sam Ellard, New Haven, Conn.; age 26; June 10th, 1898. Had undergone four operations; under care of best specialists for eight years; growing steadily worse. Anterior nares, entire left, one ulcer; six ulcers in the right. Passages now depurated with peroxide-on-Bovinine, and touched up with Paquelin cautery. Both nasal passages daily depurated, packed with Bovinine in gauze, and sprayed with Bovinine every two hours. Bovinine also

given internally, as in all cases. July 9th, the healing was complete all over—a result without a parallel to my knowledge.

OLD ULCERATIVE CATARRH.

By Dr. R——, New York.

Michael Navarro; age 27; August 12th, 1897; case of many years' standing; treated at various institutions without result; ulceration of the surfaces, exuding such large quantities of mucus as to cause severe attacks of vomiting, followed by hæmorrhage. After thorough cleansing, I sprayed Bovinine and salt water into the passages every two hours. Within a week many small points of ulceration had healed, and others were rapidly becoming covered. September 10th, examination showed complete healing of all the ulcers.

CHRONIC BRONCHIAL CATARRH.

By Dr. C——.

Henry Felix; age 44; September 14th, 1897; chronic bronchial catarrh, which had resisted many treatments; vesiculo-bronchial respiration, profuse sibilant, large and small, bubbling rales; diffused spots of the amphoric percussion sound; cough; mucous expectoration; weight reduced in six months from 160 to 122; poor appetite and digestion. After regulating the bowels, Bovinine and bronchine every four hours. October 9th, weight 134 pounds, cough and expectoration almost entirely relieved, appetite and digestion normal. Last seen November 2nd; still well.

OLD CHRONIC ULCERATIVE CATARRH.

By Dr. H——, New York.

Peter Smith; age 27th; June 18th, 1897; case was of many years' standing; unsuccessfully treated by specialists at many institutions. All the usual extreme symptoms, which were treated with the usual technique of Bovinine treatment for catarrh, with the result that at the end of the second week the ulcerative surfaces were all healed, except one minute point, and the abnormal secretion of mucus and scab-forming had ceased. July 22nd, the healing was perfect, and the sense of smell mainly restored.

DISEASES OF THE BRONCHIAL TUBES.

ACUTE BRONCHITIS.

Synonyms.—Bronchial catarrh; acute bronchial catarrh; "cold on the chest."

Definition.—An acute cartarrhal inflammation of the bronchial tubes of the larger, middle, and third size; characterized by fever, substernal pain, a feeling of thoracic constriction, oppressing in breathing, and at first scanty, followed by more or less profuse, expectoration.

Causes.—Most frequent in childhood, especially during period of dentition, when there exists a strong tendency to catarrh of the mucous membranes in general and of the bronchi in particular. In old age the predisposition again returns. Inhalation of irritants such as dust, smoke, and air too hot or too cold. More common in climates characterized by considerable moisture of the atmosphere, combined with a low temperature, and especially where there are sudden and marked variations. A specific germ?

Pathological Anatomy.—Hyperæmia of the mucous membrane of the bronchial tubes, manifested by a diffused redness, swelling, œdema, and diminished secretion, followed by an increased secretion and over growth and desquamation of the epithelial cells, together with a copious generation of young cells, the expectoration then becoming of a yellowish color (muco purulent). As a result of the hyperæmia, rupture of the capillaries of the mucous membrane frequently occurs, when the slight expectoration of the first stage is streaked with blood.

In cases of bronchitis following the exanthemata, or in scrofulous patients, the bronchial glands participate in the inflammation, becoming hyperæmic, swollen, and filled with secretion, and not infrequently the glandular elements undergo a hyperplasia, and finally the "cheesy" degeneration.

Symptoms.—The invasion is usually characterized by the occurrence of either nasal or laryngeal catarrh, or both, the patient feeling chilly, followed by flushes of heat; the limbs, joints, and even the body, are affected with pain of an aching, contused character, and with a sense of fatigue and want of energy; there may be a furred tongue, anorexia, and constipation.

In nervous, irritable persons, and in children, there may be slight delirium, and often in very young children, especially during the period of dentition, convulsions may usher in an attack.

After a day or two of these initiatory symptoms, those characteristic of bronchial catarrh develop.

Pain is experienced beneath the sternum, especially toward its upper part, of a raw, burning or tearing character, aggravated by a deep inspiration or by coughing; the pain also radiates toward the sides, following the course of the primary bronchial tubes. Tenderness over the sternum is often experienced. Muscular pain and tenderness of rheumatic character are often associated with attacks of bronchitis.

Cough from the onset, at first from paroxysms of a hard, dry character, changing as the disease progresses, and becoming looser, followed by free expectoration. The expectoration at first is small in quantity, almost transparent, frothy, and having a salty taste, often streaked with blood. As the disease progresses it becomes more abundant, of a yellowish or a greenish-yellow color, and of a tenacious consistency.

There are present slight fever, hot, dry skin, frequent pulse, loss of appetite, moderate thirst, and constipation.

A feeling of languor and weariness, and often considerable depression, quite out of proportion to the febrile state, are not infrequent.

Percussion.—Normal, except in those rare cases in which bronchial glands are involved, when irregular spots of dullness can be developed.

Auscultation.—First stage: The bronchial mucous membrane being swollen and dry, the respiratory murmur is harsh or vesiculo-bronchial in character, associated with diffused sonorous and sibilant rales.

Second stage: The secretion from the bronchial mucous membrane being increased, the respiratory murmur is less harsh in character, but is associated with large and small moist or bubbling rales.

Diagnosis.—The points of resemblance and difference between acute bronchitis and other diseases of the chest will be pointed out when those affections are described. The association of bronchitis with other diseases must not be forgotten.

PROGNOSIS.—Acute Bronchitis of the larger tubes usually terminates in complete resolution within two weeks. In children and in the aged the course is more protracted, and the symptoms more severe, but recovery is the rule. Very aged and feeble persons may succumb, but it is rare.

TREATMENT.—Medicinal treatment: A table-spoonful of Bronchine from every two to three hours, according to the severity of the attack. Bronchine reduces the inflammatory process, brings about free expectoration, modifies the cough and acts as a laxative. It is superior to all other remedies for the reasons:

1. That it is not a syrupy concoction; therefore, does not upset the stomach.

2. It covers the entire therapeutic field as no other mixture of its kind does. Bovinine should be employed as a food and tonic from the onset through the condition and for some time after all symptoms have abated, in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

CAPILLARY BRONCHITIS.

SYNONYMS. — Broncho-pneumonia (?); "suffocative catarrh."

DEFINITION.—An acute catarrhal inflammation of the mucous membrane of the terminal bronchial tubes, or bronchioles; characterized by fever, impeded and increased respiration, impeded circulation, slight cough and scanty expectoration, and symptoms of non-æration of the blood.

CAUSES.—Most common in childhood, following exposure to cold or sudden changes of temperature; occurs also in the aged, and also complicates measles, whooping cough, or any of the debilitating diseases. There may be a special germ.

PATHOLOGICAL ANATOMY. — Hyperæmia, redness and swelling of the lining membrane of the bronchioles, with the exudation of a tough, tenacious secretion.

In those cases in which the air cells are not involved, the air passes, during the act of inspiration, through the secretion, blocking the smaller tubes, but is prevented from escaping during the act of expiration, the secretion in the smaller tubes acting as a valve; the result is a distention of numerous vesicles, producing a circumscribed or diffused

functional emphysema. If the secretion produces complete closure of any of the smaller tubes, the air previously drawn into the vesicles will be absorbed, causing pulmonary collapse (atelectasis).

If the inflammation extends to the alveoli of the lungs, it produces the condition known as broncho-pneumonia, a frequent complication in children and feeble elderly people; it is most commonly lobular in character, whence the term "lobular pneumonia."

Symptoms.—Usually preceded by more or less ordinary bronchitis, followed by rise of temperature, 102-103° F., increased pulse, difficult and increased respiration, numbering forty, fifty, or sixty in the minute, with paroxysms in which the dyspnœa is markedly aggravated, when cyanosis rapidly develops; the tongue is coated, bowels costive, appetite impaired, and there is restlessness and headache.

The circulation through the lungs is impeded by the dyspnœa, the pulse becomes feeble and flickering, and there results general congestion of the venous system, the countenance becomes livid, the lips and nails blue, the surface cold, and often covered with a clammy perspiration, the mind dull, and in children stupor and convulsions rapidly supervene, the result of the non-æration of the blood. The cough is slight, but of a suppressed character, the expectorations scanty, the patient usually swallowing the sputum. When cyanosis occurs, the cough may almost entirely cease; expectoration also ceases, death soon following from apnœa and depression.

Percussion.—Normal, except over those portions of the lungs (a bilateral disease) which are in a condition of collapse, when dullness rapidly develops and may as rapidly disappear, changing to other portions of the lungs—shifting dullness.

Auscultation.—First stage, a feeble, but high-pitched, respiratory murmur, becomes less distinct and harsh as the disease progresses. The rales in the first stage are fine whistling, sibilant, changing in the second stage to fine bubbling or subcrepitant rales. The respiratory murmur is absent over the dull area.

Diagnosis.—There is one point characteristic of capillary bronchitis—it is a general or bilateral disease. Capillary

bronchitis is often mistaken for true catarrhal pneumonia, the points of distinction between which will be pointed out when discussing the latter affection.

PROGNOSIS.—In children, on account of their inability to expectorate, which tends to rapid collapse of the lungs, and in the aged, the prognosis is most grave. In the strong and vigorous, recovery follows prompt and energetic treatment.

TREATMENT. — Medical treatment, Bronchine symptomatically. In this condition the patient suffers greatly from non-oxygenation of the blood; necessarily, vitality becomes greatly lowered. Bovinine in doses from five drops to a wineglassful, from every hour to four hours, rapidly restores the blood to normal, thereby enabling nature to absorb the inflammatory process in the lung. It should be used as a food throughout the entire condition and carried through the stage of convalescence.

FIBRINOUS BRONCHITIS.

SYNONYMS.—Membranous bronchitis; plastic bronchitis; diphtheritic bronchitis; croupous bronchitis.

DEFINITION.—An acute inflammation of the mucous membrane of the larger and middle-sized bronchical tubes, attended with an exudation, forming a membraniform layer, which is closely adherent to the mucous surface; characterized by febrile reaction, cough, difficult breathing, scanty expectoration, followed by the expulsion of the false membrane in the form of patches or casts.

CAUSES.—Unknown; associated with membranous laryngitis from extension downward; asthma; emphysema; phthisis; frequently result of exposure to cold or damp, in those of feeble health or in tuberculous (?) constitutions.

PATHOLOGICAL ANATOMY.—Hyperæmia of the mucous membrane of the bronchical tubes, associated with swelling and œdema, during which the surface is covered with a whitish or grayish white, firmly adherent, membranous deposit, cemented together by a coagulable exudation, and is prolonged by rootlets from its under surface into bronchial follicles, which sooner or latter is loosened and detached by suppurative process, and is expectorated after a violent fit of coughing or vomiting. When expectorated, the false membrane, as it has been termed, has either the form of

patches or is thrown off entire from the bronchical tube, and may be found to consist of casts representing more or less of the bronchial subdivision, and presenting an appearance not unlike "boiled macaroni."

On microscopical examination, the detached membrane presents fibrillæ, which characterize fibrin or lymph in other situations; and if placed in a solution of acetic acid, it becomes greatly swollen, while ordinary mucous contracts and becomes more dense if added to the same solution.

Symptoms.—There are no symptoms or signs by means of which this variety of bronchitis can be distinguished from ordinary catarrhal bronchitis, prior to the expectoration of the false membrane.

Expectoration is preceded and accompanied by violent paroxysms of coughing, and after more or less of the membrane has been raised, a muco-purulent expectoration, streaked with blood, may be present for several days.

Duration.—The inflammation may be either acute, subacute, or chronic, expectoration of patches, or strips of the membrane being repeated at intervals of days, weeks, months, or even years.

Prognosis.—In adults, favorable, if not associated with other grave affections, such as phthisis, pneumonia, emphysema. In young children it may cause obstruction to the respiration, and not infrequently proves fatal.

Treatment.—Medical treatment as indicated. Bovinine as a food and tonic, in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

CHRONIC BRONCHITIS.

Synonyms.—Chronic bronchial catarrh; winter cough; secondary bronchitis.

Definition.—A chronic inflammation of the mucous membrane of the larger and middle-sized bronchial tubes; characterized by cough and more or less profuse expectoration, plus, in many cases, the symptoms of emphysema of the lungs, which is a frequent complication.

Chronic bronchitis may be either primary or secondary.

Causes.—Primary, exposure to wet or cold, or the repeated inhalation of dust, vapors, or other irritants.

Secondary, gout, rheumatism, syphilis; cardiac, renal, or pulmonary diseases, or alcoholism.

Varieties.—I. Mucous catarrh, associated with moderate expectoration. II. Bronchorrhœa, prefuse expectoration. III. Dry catarrh, scanty expectoration. IV. Fetid bronchitis. V Bronchiectasis, or dilatation of the bronchi.

Pathological Anatomy.—The mucous membrane of the bronchial tube is discolored, being of more or less dull red, often of a deeply venous hue, mingled with a grayish or brownish color. These changes may be either in patches or extensively diffused. The vessels of the mucous membrane are dilated, the mucous membrane is thickened, resulting in reduction in the calibre of the tube and a roughening of its internal surface. The submucous tissue becomes infiltrated, contracted, and indurated.

The elastic and muscular coats of the tubes become hypertrophied, lose their elasticity, and the cartilages become the seat of calcereous deposits.

As the result of the loss of elasticity and muscular tone of the tubes they may become irregularly dilated—"bronchial dilatation." The dilatations may be uniform in character, resembling somewhat the fingers of a glove, or they may be sacculated or globular, forming actual cavaties in the bronchial structure.

In the mucous variety the secretion consists of young cells and mucous corpuscles, having a yellowish color; in the dry variety, the "catarrhe sec" of Laennec, or "dry bronchial irritation," the secretion is scanty, tough, semi-transparent, and occurs in globular masses; in bronchorrhœa, which is usually associated with bronchial dilatation, the secrection is abundant, greenish-yellow in color, and frequently fetid.

The majority of cases of chronic bronchitis are associated with chronic gastric catarrh.

Symptoms.—The most characteristic symptoms of chronic bronchitis are the cough and expectoration. The cough occurs at all hours, but is more severe at night and early in the morning. The cough is not always present. It disappears almost altogether for a time, and then reappears, continuing thus for years. Coated tongue, disagreeable taste, loss of appetite, impaired digestion, with eructations of gases, are present in many cases, due to the chronic

gastric catarrh. Unless associated with other diseases, the general health suffers but little, if at all, constitutional symptoms being present only during acute exacerbations.

Mucous catarrh, or, from its occurring most commonly during the winter months, "winter cough," is characterized by paroxysms of cough, more or less violent, followed by the expectoration of a yellowish mucous.

Dry catarrh is characterized by a harsh cough, a feeling of soreness or rawness under the sternum, the expectoration of small gobular masses; this variety occurs with emphysema, gout, rheumatism, and asthma.

Bronchorrhœa, which is associaied with bronchial dilatation, and most common in the elderly, is characterized by paroxysms of severe coughing, followed by the copious expectoration of greenish-yellow, often fetid, mucus; the amount expectorated often amounts to four or five pints in the twenty-four hours.

Fetid bronchitis, often associated with bronchial dilatation, has an excessively fetid odor of the breath and expectoration. The decomposition of the secretion may cause gangrene of the bronchial mucous membrane, and even of the lung structure.

Percussion.—Unless complicated with other affections, normal; if bronchial dilatation occur, there are diffused spots of the tympanitic or amphoric percussion sound, the physical condition being a circumscribed cavity containing air and communicating with a bronchial tube.

Auscultation.—Harsh or vesiculo-bronchial respiration, associated with more or less profuse, sonorous, sibilant, and large and small bubbling rales; in bronchial dilatations, in addition to the harsh respiration, is found broncho-cavernous breathing, with large and small gurgling rales.

If emphysema complicate chronic bronchitis, the physical signs are somewhat modified, and will be pointed out when discussing that affection.

Diagnosis.—Always examine the urine in case of cough, and particularly in chronic bronchitis, as this disease is one of the most frequent complications of Bright's disease.

Incipient phthisis is often confounded with chronic bronchitis. The diagnosis is not always easy. The physical signs of chronic bronchitis are more or less diffused through both lungs, and not, as a rule, associated with failure of the general health; while in phthisis, from the

onset, there is failing health, with a concentration of the physical signs to the apieces. The discovery of the bacillus determines the diagnosis.

Prognosis.—If unassociated with disease of the lungs, heart, or kidneys, chronic bronchitis is never dangerous to life, although the symptoms are present, more or less, continually, and aggravated upon the least exposure. Rarely is a complete cure recorded.

If associated with phthisis, emphysema, diseases of the heart or of the kidneys, the prognosis is governed by these affections. In turn, it is to be remembered that chronic bronchial catarrh may lead to emphysema of the lungs, asthma, or to cardiac dilatation.

Treatment.—Medical treatment, Bronchine and symptomatic; Bovinine as a tonic and food. Here Bovinine restores the chronically inflamed mucous membrane to its normal condition as nothing else can do. It should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, as indicated.

ASTHMA.

Synonyms.—Bronchial asthma; spasmodic asthma

Definition.—A paroxysmal, spasmodic contraction of the muscular layer surrounding the smaller bronchial tubes, and perhaps associated with a tonic spasm of the diaphragm and more or less bronchial catarrh; characterized by spasmodic attacks of distressing expiratory dyspnœa, continuing several hours, days, or weeks.

Cause.—A true neurosis of the respiratory apparatus. The result of peripheral or local disturbances in the nervous system. Chiefly hereditary. A family history of asthma, chorea, or epilepsy. It is sometimes of reflex origin, starting from diseases of the nasal mucous membrane, explaining the attacks due to the inhalation of various substances, as ipecac, turpentine, or irritating dusts. Climate. Some attacks may be due to a peculiar and characteristic disease of the bronchial mucous membrane—an "asthmatic bronchiolitis." Bronchitis; "peribronchitis;" emphysema; chronic cardiac disease; chronic gastric catarrh; malarial toxæmia.

Asthma is more common in men than in women, and may occur at any age.

Pathological Anatomy.—Unless a "peri-bronchitis," nothing purely distinctive. The changes of emphysema are common.

Symptoms.—The onset of a first attack of asthma is abrupt and sudden, the succeeding attacks being preceded by prodromes, which the individual rapidly learns to appreciate—to wit: coryza, bronchial irritation, thoracic constriction, marked dyspepsia, or the scanty passage of pale, limpid urine, the "hysterical urine."

The paroxysm begins, in the majority of instances, in the early morning hours or during the afternoon, with a feeling of anguish and constriction in the chest and an intense desire for air. The breathing is accompanied with loud wheezing, the face is flushed, at times even cyanosed and bathed in perspiration, the eyes staring, the eyeballs protude, and the muscles of the neck become prominent as they aid in the effort for air. The dyspnœa soon becomes so severe that the inspiration is but a gasp, the lips are pallid, cyanosis deepens, and the patient feels as if death were impending. Owing to the tonic contraction of the smaller bronchi, the air drawn into the alveoli escapes imperfectly, resulting in the expiratory dyspnœa, the emphysematous chest, and the lowered position of the diaphragm.

After some minutes or hours, the respiration becomes easier, the air in the lungs changes, the cyanosis disappears, and gradually the paroxysm ceases, the patient feeling exhausted and the chest fatigued.

During the paroxysm there is a short, dry cough, becoming looser as the attack subsides. The sputum of asthma is unique. Early in the paroxysm it is raised with difficulty, and is in the form of rounded gelatinous masses ("perles" of Lænnec). If these pellets be carefully examined, they will be found to consist of moulds of the smaller bronchi, and, under the microscope, show Leyden's crystals and Curschmann's spirals. After a day or two the sputum becomes muco-purulent, and the spirals and crystals are absent.

The duration of an attack varies from one to many hours, or even days. Instead of single paroxysms, slight remissions may occur at intervals of one, two or three hours, to be followed by exacerbations, lasting from four to six hours, continuing for a week or two, preventing the patient lying down or taking food.

PERCUSSION. — During the paroxysm, hyper-resonance over both lungs, termed vesiculo-tympanitic, the "band-box tone" of Bamberger, due to the retained air in the alveoli.

AUSCULTATION.—First stage feeble or absent vesicular murmur, with prolonged expiration, associaied with loud wheezing, whistling, sibilant and sonorous rales; as the paroxysm subsides, the vesicular breathing becomes more apparent and is associated with moist rales.

PROGNOSIS.—In itself asthma is not fatal to life; but if the paroxysms are frequently repeated, there results either emphysema, cardiac dilatation with subsequent dropsy, or even cerebral hemorrhage.

Attacks of asthma frequently occur as a complication in emphysema, chronic bronchitis, valvular diseases of the heart, and Bright's disease.

TREATMENT.—Medical treatment symptomatic. Asthma generally attacks those of lowered vitality; therefore a tonic that will reconstruct and supply thorough and complete nutrition is most indicated. Bovinine is ideal, given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, it will build the patient up, and while it may not in every case cure, it certainly will lessen the severity and frequency of the attacks.

HAY ASTHMA.

SYNONYMS.—Hay fever; autumnal catarrh; rose fever.

DEFINITION.—An acute catarrhal inflammation of the upper air passages, extending to the bronchial tubes, associated with spasmodic contraction of their muscular layer; characterized by coryza, croupy or wheezy cough and difficult respiration.

CAUSES.—An affection of the nervous system; often hereditary.

Persons in whom the predisposition exists have attacks excited by the inhalation of the pollen of grasses, rye, corn, wheat or roses.

PATHOLOGICAL ANATOMY.—Hypertrophy of the inferior and middle turbinated bones; a peculiar hyperæsthesia of the mucous membrane covering the inferior and middle turbinated bones, the middle meatus, the floor of the nose

and that part of the septum below the limit of the olfactory membrane are frequently associated with the disease.

SYMPTOMS.—Begins by severe coryza, with sneezing, a clear, watery, nasal discharge, congested eyes and Eustachian tubes, rapidly extending to the larynx and bronchial tubes, when occur a hoarse, croupy and wheezing cough, and difficulty of breathing. The dyspnœa occurs in paroxysms, which are often as severe as those occurring during a regular asthmatic attack.

The paroxysms remit after a few days, returning again for several days or weeks, and again remitting, the bronchial catarrh persisting for a month or more.

The constitutional symptoms are mild, unless complications occur.

COMPLICATIONS.—The affection may extend to the finer bronchial tubes (capillary bronchitis); congestion or œdema of the lungs and pneumonia are not infrequent.

DURATION.—Unless a change of climate is resorted to, paroxysms of hay fever continue more or less severe for six, eight or ten weeks of the year, each year the paroxysms growing more severe.

PROGNOSIS.—The affection never proves fatal in itself, but one or more of the following sequelæ may result, to-wit: Asthma, chronic bronchitis, or loss of the special sense of hearing or smelling.

TREATMENT.—Change of climate; symptomatic; Bovinine as a tonic and rebuilder, in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient. In aggravated cases, where there has been destruction of the mucous membrane, with lacerations, Bovinine should be applied locally, as described in catarrhal conditions.

WHOOPING COUGH.

SYNONYMS.—Whooping cough; pertussis.

DEFINITION.—A convulsive, paroxysmal cough, consisting of a number of forcible expirations, followed by a series of deep, loud, sonorous inspirations (the whoop), repeated several times during each paroxysm, and associated with catarrh of the bronchial tubes.

CAUSES.—Chiefly the disease of childhood, one attack generally removing the susceptibility; contagious; the re-

sult of an unknown poison, perhaps atmospheric, affecting the nervous system.

Pathology.—The changes, if any, occurring in the nervous system are unknown. It is said that "irritation of the internal branch of the superior laryngeal nerve produces relaxation of the diaphragm, spasm of the glottis and a convulsive expiration, the series of phenomena present in a paroxysm of asthma."

Hyperœmia of the mucous membrane of the nares, pharynx, larynx and bronchial tubes, with diminished secretion, followed by an increased secretion of a transparent mucous, afterward becoming purulent, the mucous membrane pale and anæmic.

Symptoms.—Divided into three stages, to wit: Catarrhal, spasmodic and terminal.

Catarrhal stage originates as an ordinary naso-laryngo-bronchial catarrh with a loose cough. Duration one or two weeks.

Spadmodic stage. Tne cough becomes paroxysmal, consisting of a succession of short, rapid, expiratory efforts, the face becoming red, the eyes swollen and protruding, the body bent forward, and when these expiratory efforts have exhausted the breath, they are followed by a deep, loud, crowing inspiration—the whoop; each paroxysm being composed or three such spells, the last one followed by the expectoration of a small amount of tough, viscid mucous.

The attacks of cough may be so severe as to cause vomiting, and if the vomiting occur shortly after food has been taken, the nutrition of the patient will suffer. Profuse epistaxis is not infrequent. Duration about four weeks.

Terminal stage. The paroxysms recur at longer intervals, are of short duration and less intensity, the catarrhal symptoms being more marked, the expectoration freer. Duration, one or two weeks, often followed by the "cough of habit."

Complications.—Congestion of the lungs, capillary bronchitis, pneumonia and emphysema, or, rarely, convulsions, hydrocephalus, or apoplexy.

Diagnosis.—During catarrhal stage, whooping cough cannot be distinguished from a common cold, but on the advent of the characteristic whoop the diagnosis is evident.

PROGNOSIS.—Depends upon the age and strength of the patient, the severity of the paroxysms, and the presence or absence of complications. Ordinary cases, favorable. Moderately severe attacks during infancy are followed by cerebral symptoms, while attacks occurring in adults are followed by chest symptoms.

TREATMENT.—Medical treatment symptomatic. In this condition, the patient as a result of the prolongation of the symptoms, becomes debilitated and often anæmic. To combat this and sustain the patient, thereby enabling nature to more readily throw off the condition, Bovinine should be given in from five drops doses to a tablespoonful from every hour to four hours, according to the age and condition of the patient.

EMPHYSEMA.

SYNONYM.—Vssicular emphysema.

DEFINITION.—Dilatation of, or increase in the size and capacity of, the air vesicles, characterized by enlargement of the chest, difficulty of breathing, especially on exertion, and associated sooner or later with dilatation of the heart.

CAUSES.—The predisposing cause of emphysema is a hereditary nutritive derangement of the lung structure, often associated with a rigid enlargement of the thorax.

The exciting cause is the result either of a too forcible and long continued inspiration—the theory of inspiration—or the excessive mechanical distention of the vesicular walls by forced expiration—the theory of expiration.

What is known as vicarious emphysema is a distention of the air cells of the healthy portion of the lung, some other part being the seat of consolidation.

Interlobular emphysema is the presence of air in the spaces between the lobules of the lungs, underneath the pulmonary pleura.

PATHOLOGICAL ANATOMY.—The situation of vesicular emphysema is, in the majority of cases, the superior portions of the chest, and is more marked on the left side than on the right.

An emphysematous lung feels remarkably soft to the touch, and upon cutting, a dull, creaking sound is barely perceptible. It is of a pale red color, the vesicular walls are thinner and lighter, the vesicles are greatly enlarged, sometimes to the size of a pea or bean, and have an irregu

lar shape, and transversing most of these large cysts (dilated vesicles) a few delicate bands, the remains of the lacerated interalveolar septa, are visible. In consequence of the destruction of so many of the capillaries, the obstruction to the pulmonary circulation becomes so great that the pulmonary artery and right cavities of the heart are greatly distended; finally, the muscular tissue of the heart undergoes granular, followed by fatty, degeneration. The distention of the veins results in a general venous stasis, to-wit: Nutmeg liver, congested kidneys, and gastro-intestinal catarrh.

SYMPTOMS.—The chief symptoms of vesicular emphysema are difficulty of breathing; greatly aggravated on exertion, more or less cough, the result of an attending bronchitis, and the various symptoms resulting from dilatation of the heart. The distress of the patient is often increased by paroxysms of asthma.

INSPECTION.—The shoulders are rounded, the intercostal spaces widened, the vertical diameter elongated, with circumscribed prominences between the clavicles and nipples, often increased by the act of coughing—the peculiar "barrel-shaped" chest, characteristic of this disease.

The character of the respiratory movements is marked, there being but slight movement observed on forcible respiration, the chest having the constant appearance of a full inspiration.

PALPATION.—The vocal fremitus is diminished, and the cardiac impulse depressed and nearer to the sternum.

PERCUSSION.—The resonance is increased (hyper-resonant) over all the emphysematous portions, and if the whole lung be involved, extends to the seventh or eighth rib anteriorly, and to the twelfth rib posteriorly. The hepatic dullness may not begin until the inferior margin of the ribs is reached; the cardiac dullness is lessened, on account of the emphysematous lung nearly covering the heart.

AUSCULATION.—The vesicular murmur is weakened, and in pronounced cases almost absent. If bronchitis be present, the inspiratory sound may be rough or sibilant in character, but its duration is always shortened. Expiration is always prolonged, and if bronchitis be present, may be associated with more or less pronounced moist or bubbling rales.

The first sound of the heart is lessened in intensity and duration, the second sound being sharply accentuated.

DIAGNOSIS.—Bronchitis is distinguished from emphysema by the absence of dyspnœa, hyper-resonance of the chest, changes in its shape, size and movements, and the disturbance of the circulation.

Spasmodic asthma by the paroxysmal character of that affection, emphysema being a permanent malady, with attacks of asthma.

Cardiac diseases due to other other causes than emphysema do not have the characteristic physical signs of that affection.

PROGNOSIS.—Vesicular emphysema is essentially a chronic disease. In itself it rarely proves fatal, but if aggravated, from any cause, or if associated with severe or prolonged asthmatic paroxysms the cardiac changes are hastened, general dropsy intervenes, death occurring from exhaustion, or, more commonly, as the result of intercurrent attacks of pneumonia.

TREATMENT.—Medical treatment symptomatic; suitable climate; Bovinine as a tonic in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient, will greatly improve the condition by its direct tonic effect on the mucous membrane.

HÆMOPTYSIS.

SYNONYMS.—Bronchial hemorrhage; broncho-pulmonary hemorrhage; bronchorrhagia.

DEFINITION.—The expectoration of pure or unmixed blood, usually of a bright red color, following the act of coughing.

CAUSES.—In the majority of cases, the result of tubercular disposition in the walls of the minute bronchial arteries; excessive cardiac action; bronchial congestion; excessive bodily exertion, straining, lifting or running; a symptom of hœmophilia (bleeders' disease).

PATHOLOGICAL ANATOMY.—Hæmoptysis rarely causes death in itself, so that few opportunities for observing post-mortem appearances are obtained, and when they do occur, the location of the hemorrhage is seldom found.

The air passages are more or less filled with clotted blood, the mucous membrane is swollen, and of a dark red color.

rarely, pale and bloodless. The air cells contain blood clots, or are distended with air, the bronchi being filled with clots preventing its escape. Unless the clots are rapidly removed by expectoration or absorption, a secondary inflammation originates around about them.

SYMPTOMS.—"Spitting of blood" occurs suddenly; rarely, it is preceded by epistaxis, cardiac palpitation and some difficulty of breathing.

It begins with a sensation of warmth under the sterum. tickling in the throat, a sweetish taste in the mouth, which, upon attempting to remove by the act of coughing, a warm, saltish bright red, frothy liquid gushes from the mouth and nose. The quantity of blood raised varies from an ounce to a pint. The appearance of the blood depresses the individual, he becoming pale, tremulous, often fainting.

The attack may subside within half an hour to several hours, returning for several days, in the meantime the expectoration being bloody or streaked with blood.

A slight febrile reaction, with the chest pains, supervenes upon the hemorrhage, the result of the inflammation at the site of the bleeding, which soon subsides, except where blood clots develop a secondary pneumonia, which may undergo the cheesy metamorphosis.

AUSCULTATION.—Coarse, bubbling rales are discerned in circumscribed portions of the chest.

DIAGNOSIS.—From epistaxis, or hemorrhage from the posterior nares, it is distinguished by the absence of air bubbles and an inspection of the fauces and the nasal cavities.

Hœmatemesis, or hemorrhage from the stomach, differs from hæmoptysis in the blood being vomited instead of expectorated, of a dark color, clotted, mixed with the acid contents of the stomach, followed with black, tar-like stools, and the absence of rales in the chest.

Exceptions to the above occur when the blood from the lungs is first swallowed and afterwards raised by vomiting, or when the hemorrhage in the stomach is caused by the erosion of a large artery, the result of ulcer of the stomach: in these cases, however, the raising of the blood is preceded by epigastric pain and the blood is not frothy.

PROGNOSIS.—Hæmoptysis in itself rarely terminates fatally, although causing much depression; the patient

rapidly recovers, unless secondary pneumonia results. In nine cases out of ten it is the prognostic sign of phthisis.

TREATMENT.—Medical treatment symptomatic. Bovinine is precisely indicated in this condition both as a tonic and food. In extreme cases its effect has been most appreciated clinically, in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient, and it has been noted with great clinical satisfaction that in the majority of cases a cure resulted.

DISEASE OF THE LUNGS.

CONGESTION OF THE LUNGS.

SYNONYMS.—Hyperæmia of the lungs.

DEFINITION.—An increase, in or abnormal fullness of, the capillaries of the air cells; active congestion when the result of an accelerated circulation; passive congestion when caused by an impeded outflow from the capillaries.

CAUSES.—Active. Increased cardiac action; over-exertion; alcoholic excesses; mental excitement; inhalation of cold or hot air.

Passive. Obstruction to the return circulation. Dilated heart; valvular diseases; low fevers (hypostatic congestion); Bright's diseases.

PATHOLOGY.—The hyperæmic lung has a bloated, dark red appearance, its vessels are distended to the uttermost, the tissues succulent and relaxed, blood flowing freely over the cut surface; a bloody, frothy liquid is present in the bronchi, and the alveolar walls are so much swollen that the condensed lung shows scarely any indication of its cellular structure, resembling the tissue of the spleen (spenification).

SYMPTOMS.—Active. Rapidly developing thoracic distress and difficulty of breathing, flushed face, strong, full pulse, throbbing carotives, cardiac palpitation and congested eyes, with a short, dry cough, followed by scanty, frothy expectoration, slightly streaked with blood.

Passive. Develops slowly, with difficulty of breathing, blueness of the surface, almost continuous hacking cough, followed by scanty blood-streaked expectoration.

PERCUSSION. — The resonance of the lung is slightly diminished, the quality of the sound being somewhat tympanitic.

AUSCULTATION.—The vesicular murmur is diminished, and accompanied with sub-crepitant rales.

DURATION.—Active. Usually to three to five days, terminating either by resolution, hemorrhage, or, rarely, pneumonia. The onset may be so severe and sudden that death rapidly supervenes.

Passive. Develops slowly and subject to great variations, depending upon the cause.

DIAGNOSIS.—Active congestion of the lungs cannot be distinguished from the stage of engorgement of a true pneumonia in the majority of cases.

PROGNOSIS.—An acute congestion of the lungs may prove fatal within a few hours, but under prompt treatment, it generally terminates favorably.

The passive form is controlled entirely by the cause.

TREATMENT.—To sustain the patient and combat the pathological process, thereby preventing complications, Bovinine in this condition should be employed from the onset through the entire attack and into the stage of convalescence indefinitely in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

ŒDEMA OF THE LUNGS.

DEFINITION.—An effusion of serum upon the free surface of the lung, to wit: In the pulmonary vesicles; characterized by dyspnœa, cough, and frothy, blood-streaked expectoration.

CAUSES.—Result of cardiac diseases; Bright's disease; over-exertion; alcoholic excesses; mental excitement; inhalation of cold or hot air.

PATHOLOGICAL ANATOMY.—The lung tissue is swollen, and does not collapse when the chest is opened. The elasticity of the tissue has disappeared and pits upon pressure.

If following the congestion of the lungs, the color is red; if a symptom of a general dropsy, its color is pale.

On cutting into the œdematous spots an enormous quantity of liquid, sometimes clear, and other times of a red color, mixed more or less with blood, flows over the cut surface. The liquid is filled with bubbles, is frothy, from being copiously mixed with air, providing the air

cells have not been entirely filled with serum, thereby excluding the air.

SYMPTOMS.—Following a more or less rapidly developing hyperæmia of the lungs are great oppression of and extreme rapidity in breathing, with a strong sense of oppression, great anxiety, rapid and tumultuous cardiac action, throbbing carotives and temporals, fullness of the head and headache, flushed face and congested eyes, with a constant short cough, and the expectoration of a tough, frothy mucus, streaked with blood.

If the effusion into the air cells be sufficient to prevent the entrance of air, symptoms of cyanosis rapidly supervene, the pulse becoming feeble, the surface cold, the breathing shallow and hurried, the cough suppressed, stupor replacing the restlessness, soon deepening into coma.

PERCUSSION.—Slightly impaired or vesiculo-tympanitic.

AUSCULATION.—The vesicular murmur is supplanted by sub-crepitant and bubbling rales.

DIAGNOSIS.—Pneumonia in the earlier stages is the only condition likely to be confounded with œdema of the lungs, and the subsequent coarse of the true maladies soon determines the diagnosis.

PROGNOSIS.—Œdema of the lungs is always a serious malady, and frequently, unless promptly relieved, terminates fatally.

TREATMENT.—This condition usually being the result of cardiac disease, Bright's disease, over-exertion, alcohol excesses, mental excitement or inhalation of cold or hot air, usually develops in poorly nourished patients. Therefore, Bovinine is the remedy par excellent and should be given doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

CROUPOUS PNEUMONIA.

SYNONYMS.—Lobar pneumonia; pneumonitis; fibrinous pneumonia; pleuro-pneumonia; lung fever; winter fever.

DEFINITION.—An acute croupous inflammation involving the vesicular structure of the lungs, rendering the alveoli impervious to air; characterized by severe chill, fever, pain, dyspnœa, cough, rusty sputum and great prostration.

CAUSES.—The question of pneumonia being a constitu-

tional disease is still sub judice, although the belief is growing, as it presents such a marked difference from other inflammations, in that it is self-limited, and terminates by crisis. It is most common in winter, at times occurring epidemically, the result of atmospheric conditions; exposure to draughts and cold; injuries to the chest walls, alcoholic excesses; gout or rheumatism.

Pathological Anatomy.—Inflammatory changes most commonly affect the lower right lobe, rarely the upper lobe, very rarely corresponding lobes in both lungs.

The changes are: first, hyperæmia (engorgement); second, exudation (red hepatization); third resolution (gray hepatization); or it may undergo purelent transformation or the development of abscesses (yellow hepatization).

First stage of hyperæmia or engorgement consists in the vessels of the alveoli being distended to their utmost, encroaching upon the cavity of the air vesicle; the lung has a reddish brown color, is heavier, sinking somewhat lower in water than a normal lung, and having a slight exudation upon the vesicular surface. The same changes are perceived in the adjacent bronchioles. Second stage of exudation consists in the exudation of a viscid, febrinous fluid, admixed with white and red corpuscles, and blood which rapidly coagulates, firmly enclosing the corpuscles and completely filling the alveoli. When the exudation and coagulation are completed the lung is red, sinks at once when placed in water, and its elasticity is destroyed. When cut into, the color, density and granular appearance so closely resemble the cut surface of a section of the liver, that Lænnec termed it red hepization.

Third resolution, or gray hepatization, follows the above condition in the majority of cases, the coagulated albuminous exudation undergoing liquefaction and absorption, the cellular element undergoing a fatty degeneration, the greater part being absorbed, the remainder expelled during acts of expectoration, the alveoli returning to their normal condition both as to capacity, function and elasticity.

If resolution be retarded and portions of the coagulated exudation undergo purelent transformation, changing from a yellowish to a greenish-yellow color (yellow hepatization) puss cells are rapidly formed, the part becoming a granular, fatty mass. The portions of the lung not undergoing this purulent transformation retain the reddish color with inter-

mixed yellowish patches, the lung structure proper remaining intact. The purulent contents may be ejected in part, the remainder undergoing fatty degeneration and finally absorption.

Abscess of the lung may result from the lung structure becoming involved in the purulent disintegration. Abscesses may be solitary or in great numbers, which by disintegration of intervening structure form one or more large abscesses; these abscesses either terminate fatally, or open into the pleural cavity, causing empyema and exhaustion, or open into the bronchi and are expectorated, or interstitial pneumonia is developed, and the abscess encapsulated in a firm cicatricial tissue.

Gangrene of the lungs may result from blocking up of the bronchial or pulmonary arteries by coagular during any stage of the disease. The uninflamed portions of the lungs are hyperæmic and their funtional activity is increased.

Death sometimes results from a general œdema of the unaffected lung, such cases being often erroneously termed "double pneumonia."

If inflammation of the pleura be associated with a pneumonia, the so-called pleuro pneumonia, the changes in the pulmonary pleura are characteristic. "An uneven, thin, downy-looking layer of plastic exudation covers its surface. This plastic layer may conceal the liver-brown color of the pneumonic lung, as the third stage is reached the opposing surfaces of the pleura may become agglutinated. The pleuritic changes follow very closely those which occur within the lung, the cells in the pleuritic exudation are mainly puss. Pleuritic membrane is opaque, congested and ecchymotic. It may become so thick as to give a dull note on percussion, after resolution is reached."

Duration of stages: Stage of congestion, from one to three days; stage of exudation, from three to seven days; stage of resolution, from one to three weeks.

In severe cases or in the very young, the aged or the depressed, the stage of red hepatization may be fully developed within forty-eight hours.

Seat: The most frequent seat of croupous pneumonia is the lower right lobe; the next most frequent seat is the lower left lobe; the next, the upper right lobe, although in children and the aged this lobe is affected equally as often as the right lower lobe.

Symptoms.—Begins with a severe and usually protracted chill (in children, often convulsions; adults, vomiting), followed by a rapid rise of temperature, 103°–104° F., a strong, full, but rapid pulse, soon showing evidences of embarrassed cardiac action from obstructed respiratory circulation, either a dull or sharp pain near the nipple, aggravated by pressure, breathing or coughing, shortness of breath, the number of respirations increasing to forty, fifty or more per minute, causing interrupted speech; cough, first short, ringing and harsh, soon followed by a scanty, frothy mucous, soon becoming semi-transparent, viscid and tenacious, about the second day changing to the familiar rusty sputum, becoming more copious and a yellow color as the disease advances. Rarely cases occur with bloody or blood-streaked sputum during the continuance of the fever. There are present headache, sleeplessness, rarely delirium, save in drunkards, epistaxis, flushed countenance and especially over the malar bones is a well-defined mahogany blush; gastric disturbances and scanty, high-colored urine, with diminished chlorides, often albuminuria.

From the very onset of the disease the prostration is of the most marked character.

The above symptoms continue more or less marked until either the fifth, seventh, ninth or eleventh day, when the crisis occurs, and within twenty-four hours convalesence is established, recovery rapidly following.

Typhoid pneumonia is a term applied to those cases which are accompanied by signs of extreme prostration, delirium, tremor, very high temperature and profuse and prolonged exudation. They may also terminate by a crisis.

Bilious pneumonia occurs in cases accompanied by congestion of the liver, the result of venous stasis from pulmonary obstruction or from an accompanying acute catarrhal jaundice. In malarial districts, pneumonia and malaria are often associated, when jaundice, more or less pronounced, occurs. Such cases are termed malarial or intermittent pneumonia.

If purulent infiltration follow the stages of red hepatization, instead of a crisis, symptoms of exhaustion occur, with profuse purulent expectoration, high temperature, severe sweats; the tongue brown and dry, sordes collecting on the teeth, recovery slow and convalesence tedious.

Pneumonia occurring in persons of intemperate habits usually begins with symptoms closely resembling an attack of delirium tremens, cough and expectoration, the pain very slight, or even absent.

INSPECTION. — First stage, deficient movement of the affected side, due to the pain.

Second stage, the healthy side rises normally, the affected lagging behind. If both lower lobes are impervious to air, the diaphragm cannot descend and the epigastrium doses not project during inspiration, the breathing being conducted by the upper part of the chest (superior costal respiration).

PALPATION.—First stage, the vocal fremitus more distinct than normal.

Second stage, the vocal fremitus is markedly exaggerated, except in those rare instances of occlusion of the bronchi by secretion.

The cardiac impulse is felt in the normal position.

PERCUSSION. — First stage, the percussion noted is slightly impaired; indeed, at times having a hollow or tympanitic quality.

Second stage, dullness over the affected parts, with an increased sense of resistance.

AUSCULTATION.—First stage, over affected part, feeble vesicular murmur, associated with the true vesicular or crepitant (crackling) rale, most distinct during inspiration.

Second stage, high pitched bronchial respiration, at times resembling a to and fro metallic sound, except in those rare instances in which the bronchi are more or less filled with secretion.

Bronchophony, or distinctly transmitted voice, at times pectoriloquy, or distinct transmission of articulated sounds.

Third stage, breathing changing from bronchial to vesiculo-bronchial, the crepitant (crepitatio redux) rale returning, and if resolution proceed, the breath sounds are associated with large and small moist and bubbling rales.

"The morbid phenomena, physical signs and symptoms of the malady correspond usually in this manner."—Da Costa.

Stage of engorgement and beginning exudation. Crepitant; slight percussion dullness. Cough beginning dyspnœa and rapidly developed fever heat.

II. Stage of solidification of lung-tissue (red hepatization). Percussion dullness; bronchial respiration; bronchophony. Rusty-colored sputum; dyspnœa; cough; high fever, with marked evening exacerbations and morning remissions

III. Stage of softening (gray hepatization). The same physical signs as in the second stage, unless large abcesses have formed. Chills; prostration, etc.; purulent or brown sputum; generally high temperature.

Terminations. — Asthenic cases recover within two weeks. When purulent infiltration supervenes, the disease pursues a tedious course of several weeks' duration, with a low exhaustive fever.

If death occur during the first or second stages it is usually the result of a collateral œdema of the uninflamed lung, or cardiac failure and impaired nerve force

If abcesses occur, there are exhaustion, sweats, frequent cough, with a large amount of yellowish-gray, at times blood-streaked, expectoration.

Gangrene of the lungs is a rare termination; it is associated with symptoms of collapse, the expectoration of a blackish, fetid sputum, and the physical signs of a pulmonary cavity.

Diagnosis.—Œdema of the lungs may be confounded with the first stage of pneumonia, but the subsequent history, its presence on both sides, and the watery expectoration and absence of chill and pain and the physical signs of pneumonia soon determine the diagnosis.

Complications.—Acute pleuritis is a frequent complication of croupous pneumonia, occurring as often as from ten to twenty-five per cent. of cases. The more acute localized pain, the greater embarassment of respiration and the usual physical signs of effusion are the evidences of a pleuro-pneumonia.

Capillary bronchitis is a rare but dangerous complication.

Pericarditis, rheumatism and gout are rare complications.

Pleurisy is often confounded with pneumonia than any other disease, and the points of distinction between which will be pointed out when discussing that affection.

Prognosis.—Depends on the extent of the inflammation, the dangerous features of croupous pneumonia being cardiac failure the result of the embarassed respiratory circu-

lation, and the rapid tissue waste associated with extreme fever, 105°, resulting in impaired nerve force; double pneumonia is a very grave prognosis, but it is not nearly as frequent as was at one time supposed. The co-existence of pleuritis adds to the gravity of the prognosis, although not as fatal as it formerly was. Pneumonia of drunkards almost invariably terminates fatally. Typhoid pneumonia, the so-called bilious pneumonia, purulent infiltration, abscesses of the lungs and gangrene, all give a grave prognosis.

TREATMENT.—No condition presents greater therapuetic possibilities for Bovinine than croupous pneumonia. It being a self-limited condition, must, of course, run a stated course, the object in the treatment being to sustain the patient until the pathological condition has subsided and nature can reassert herself. Bovinine in this condition is of the greatest value and should be given in doses ranging from five drops to a wineglassful from every honr to four hours, according to the age and condition of the patient. It nourishes the patient, regenerates the blood and prevents complications.

CATARRHAL PNEUMONIA.

SYNONYMS. — Bronchi-pneumonia; lobular pneumonia; capillary bronchitis (?)

DEFINITION.—An acute catarrhal inflammation of the bronchioles and alveoli of the lungs, characterized by fever, cough, dyspnœa, copious expectoration and great depression.

CAUSES.—From an extension of a bronchial catarrh, downward, following the eruptive fevers, especially measles; complicating whooping-cough. Persons of the rickety or scrofulous diathesis, in whom there is a great irritability of the epithelial elements, are particularly predisposed to this form of pneumonia on slight exposure; emphysema; diseases of the heart; most frequently seen in childhood and old age.

PATHOLOGICAL ANATOMY.—Hyperœmia of the mucous membrane of the bronchi, and also of the bronchioles and air cells, with swelling and succulence of these tissues, accompanied by an abnormal secretion and an immense

production of young cells from the proliferation of the bronchial and alveolar epithelium, admixed with a yellowish, creamy, mucoid material, which blocks up the bronchioles and air cells.

The affected parts first have a reddish-gray, soon changing to a yellowish-gray color, due to the rapid metamorphosis of the newly-developed cells. If the fatty change be completed, absorption takes place, and the consolidation is removed; if it remain incomplete, the cells atrophy, the little mass becoming caseous, and the disease passes into a chronic state.

The bronchial tubes also participate in the disease, the walls become thickened, from a hyperplasia of the connective tissue (peri-bronchitis), and their calibre is often dilated.

Symptoms.—Catarrhal pneumonia begins as a catarrhal bronchitis. It may either be acute, sub-acute or chronic in its course.

Acute variety: Its onset is announced by a gradual rise of temperature, to 102°–103° F., the febrile phenomena assuming a typical remittent character, with rapid, laborious and shallow breathing, as shown by the widely dilated nares and violent action of all the accessory muscles, while the insufficient distention of the lungs is shown by the great recession of the lower part of the chest walls and sinking in of the intercostal spaces. The inspiration is short and imperfect, the expiration noisy and prolonged; the pulse is frequent, 100–120 or more, and somewhat compressible; the cough, which, during the bronchitis, was loose, now becomes short, hacking, dry and painful, soon followed by more or less copious muco-purulent expectoration; the appetite is impaired, bowels somewhat loose, urine scanty, high-colored, and the surface frequently covered with more or less profuse perspiration.

The sub-acute and chronic varieties have the same general symptoms, but the duration is longer and the exhaustion greater,

The progress of catarrhal pneumonia is sometimes, although not often, a very acute one. The disease may prove fatal in a few days, especially if it attack feeble children; in such the countenance becomes pale and livid, the lips bluish, the eyes dull, and a restlessness giving place to apathy and a continually augmented somnolence.

Resolution, when it occurs, is by lysis, several weeks elapsing before complete recovery.

PERCUSSION.—Dullness, scattered in patches, over both lungs, the intervening healthy lung often giving a more or less hollow or tympanitic note.

AUSCULTATION.—Vesculo-bronchial breathing, changing to moist bronchial breathing, associated with small bubbling (sub-crepitant) rales. As the disease progresses toward resolution, the rales become larger (large bubbling) and more copious. If pneumonic phthsis result, physical signs indicative of that condition are soon evident.

SEQUELÆ.—Attacks of catarrhal pneumonia, complicated with atelectasis, or collapse of the lobules, when recovery occurs, are followed by emphysema of the lungs.

If the catarrhal products which fill the alveoli and bronchioles and intervening connective tissue do not rapidly undergo complete fatty metamorphosis and consequent absorption, pneumonic phthisis results.

DIAGNOSIS. — Ordinary bronchial catarrh differs from catarrhal pneumonia by the absence of dyspnœa, fever, and dullness on percussion, and the presence of the large bubbling rales, and also by the subsequent history of the two affections.

Croupous pneumonia is a unilateral disease; catarrhal pneumonia is bilateral and diffused over both lungs; the former a self-limited disease, the latter having no fixed duration.

Acute tuberculosis at its onset is characterized by the presence of a capillary bronchitis, a differentiation being possible only by a study of the clinical history and cause of the two maladies.

Œdema of the lungs is a bilateral, associated with a short, dry cough and dyspnœa; but lacks the previous catarrhal history and high temperature of catarrhal pneumonia.

PROGNOSIS.—Fully one-half of the cases of true catarrhal pneumonia terminate fatally. The prognosis must be guarded in scrofulous or rachitic subjects, or those enfeebled by other diseases, for, unless prompt resolution can be effected, it will terminate fatally early, or develop pneumonic phthisis. Have seen cases continuing up and down for eight and ten months, and finally make a good recovery.

TREATMENT.—No condition presents greater therapeutic possibilities for Bovinine than catarrhal pneumonia. It being a self-limited condition, must, of course, run a stated course, the object in the treatment being to sustain the patient until the pathological condition has subsided and nature can reassert herself. Bovinine in this condition is of the greatest value and should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient. It nourishes the patient, regenerates the blood and prevents complications.

THE TREATMENT OF INCIPIENT PHTHISIS.

By EUGENE C. UNDERWOOD, M. D., Louisville, Ky.

There is no chapter in the history of the human family that is more replete with interest than that of tuberculosis. The deaths which result from this cause are more numerous than from any other, and in all the ends of the earth it is the greatest foe to human life.

It has been the dream of enthusiastic physicians and sanitarians to bring this affection within the limits of curability.

After phthisis has advanced, and there are cavities in the lungs, and the general health has been completely undermined, we shall have but little chance, by the means generally used, to stay the march of the affection toward a speedy and fatal termination. Yet I fully believe that tuberculosis is curable if it be properly treated when it is in its incipiency.

I am morally sure that I have had many cases of pure phthisis to end in cure, which, if they had not been treated properly, would have advanced, step by step, to a fatal issue. The great truth must not be forgotten that phthisis is a disease characterised by tissue waste. This waste goes on steadily, and the lungs become all the more diseased as the system in general suffers from the effect of inadequate nutrition.

My treatment consists in maintaining a well-nourished condition of the system. This is the key to the successful control of this affection. A great sanitarium in the Black Forest of Germany has gained a reputation which is international for the cure of phthisis, and the treatment em-

ployed at this institution consists in the forced feeding of the patients with raw beef.

The results I have attained in the treatment of incipient phthisis have been brought about by the employment of Bovinine. Bovinine possesses all the elements necessary to nourish the tissues. It is agreeable to the palate, and never produces nausea and dyspepsia, as is the case when cod liver oil is relied on.

In overcoming the tissue waste and causing an increase of flesh and general improvement of all symptoms, I have found no agent to equal Bovinine. I have now abandoned all other remedies in the treatment of incipient phthisis, and rely solely upon Bovinine.

Of course, I give remedies to relieve the cough and to counteract other symptoms, but to produce steady increase in the patient's weight, and to bring up the patient's general health to a point where microbes will not flourish, I rely upon Bovinine.

Codeine I rely upon to relieve the cough; this agent being preferred because it does not derange the secretions, as do other opiates.

The following reports of cases are among a number which I nave on record, which have been treated with Bovinine as the agent upon which reliance was placed to bring nutrition up to the highest point, and in that way deal the most effective blow to the bacillus:

Case I. Miss ——, aged 21. This young woman had not menstruated for three months, had an inconsequential cough, night sweats, and progressive loss of flesh. She had in the three months lost 20 pounds, and was pale and felt weak. Physical signs gave crepitation in apex, but I could not get well-defined dullness on percussion. This was clearly a case of incipient phthisis, such as is constantly seen by the physician.

I put her on Bovinine in doses of a teaspoonful every three hours. This was taken in milk or wine, just as the patient chose.

She took codeine tablets, $\frac{1}{8}$ gr., often enough to secure respite from the cough.

The patient began to get better from the tenth day, and this continned without cessation. After treatment for six weeks, her weight had increased 14 pounds. At the end

of the tenth week she had menstruated, had no cough, had a good appetite, and ceased to take the Bovinine.

A year has passed, but this patient has had no sign or symptom of phthisis, or, in fact, of any affection whatever.

Case II. Mr. ——, aged 31. This man had la grippe, and was left with a cough, night sweats and dyspepsia, and with other symptoms and signs of incipient phthisis. On Bovinine as the central remedy, he regained his lost weight and became strong, and ceased to have cough or other untoward symptoms, after the employment of the remedy for seven consecutive weeks.

Case III. Mrs. ——, a married lady, had begun about the middle of August, 1899, to have an inconsequential cough with progressive loss of flesh, dyspepsia, and occasional colliquative sweats.

Besides such drugs as were given to control symptoms such as cough, night sweats, etc., she took Bovinine in teaspoonful doses every three hours.

This acted happily in bringing about return of lost flesh, she ceased to cough, and has gone for six months without any return of her trouble in any way.

She took the Bovinine altogether eight weeks; usually in a glass of claret.

Case IV. G. S——, aged 31. This man had well-marked symptoms of incipient phthisis. On Bovinine, with symptom medicines, he went to complete recovery in a period of twelve weeks.

BOVININE IN CONSUMPTION.

CONSUMPTION CASE.

Treated by Dr. K——.

Following is an abstract of an early test of Bovinine in a desperate case of pulmonary tuberculosis by a New York physician of the highest distinction, to whose well-known name the ordinary profession is accustomed to bow down. As an experiment in the last resort and without hope, the powerful remedial effects realized in the course of the ensuing struggle astonished the celebrated professor himself, who had never seen anything like it in all his wide experience. It will not escape notice that this struggle was enacted in the worst of climates and during the worst season of the year for consumptives, and an uncommonly severe season besides.

On January 7th, 1895, Dr. C——, of New Jersey, brought to this eminent consultant Miss Anna B——, in an advanced stage of consumption, as will be seen by the following particulars: The upper lobe of the right lung was already completely destroyed, and tubercular deposits were well established in the apex of the left lung. She had also a tubercular diarrhœa, and her stomach had become so weak and irritable as scarcely with difficulty to retain the smallest dose of stimulant, nourishment, or even iced water. In the rapid course of the disease she had been reduced in barely six months from a condition of good health and a weight of 155 pounds to this moribund state, with only 103 pounds of weight remaining. Dr. C—— said that she had been subjected during this time to every treatment suggested by the most eminent modern authorities, but had rapidly grown worse from day to day, as her condition proved that she must literally have done. The medical treatment could be little improved, and was substantially continued; the main effort being directed to re-establishing nutrition, "the physical basis of life." The first effort was made with liquid peptonoids, also giving creasote, on which there seemed to be a very slight improvement in the first week.

The stomach then altogether refused this nourishment. It seemed as if the case must be given up to a hopeless and swift termination, possibly to be somewhat delayed by immediate removal to a favorable climate, which was advised; but for want of means this was impossible. "At my wits' end, almost," says Dr. K., "I determined as a last resort to try Bovinine, believing that if her stomach could retain it, it must necessarily help her. I began with ten drops hourly in iced brandy, and giving dilute hydrocyonic acid two drops, every three hours, with five grains sub-nitrate of bismuth as a stomach sedative. The first three doses were vomited, and I began to fear that this, like all other remedies, was going to prove useless, but nevertheless I determined to give it a thorough and fair trial. The fourth dose was retained. The course was continued for three days, with a half-pint of milk punch, which soon began to be retained, three times a day. After the third day, the Bovinine was increased to a teaspoonful every two hours, in milk and brandy. On the fifth day the treatment began to show good results; the patient

slept better, her night sweats lessened, and her cough decreased in severity. On the eighth day the stomach refused everything, except a little iced champagne. The next day, however, Bovinine was again retained. Tenth day, besides the Bovinine, milk and brandy, gave one drop beechwood creasote every three hours, which was retained, but with difficulty. The eleventh day was passed comfortably, taking both Bovinine and creasote. On the twelfth day was given also one-quarter grain codena, to relieve the cough, which had again increased in severity. On the thirteenth day the Bovinine dose was increased to a wineglassful, and creasote to two drops every three hours. From that day, under the continned Bovinine treatment, the patient has steadily improved, gaining flesh and sleep, without night sweats, and the cough comparatively very slight, until the present date, March 6th, when the right lung seems to have healed, with the exception of a space about the size of an English walnut; her weight has increased to 132½ pounds, and she feels most hopeful. She is still taking Bovinine in milk and brandy every three hours, and one drachm compound syrup of hypophosphates. The improvement is wonderful, and worthy of the most careful consideration by my medical brethren."

CONSUMPTION CASE.

By Dr. T. J. Biggs.

Mansfield Herron, an Englishman, aged 32, height 5 feet 9½ inches, weight 148 pounds, came under my care, per Demilt Clinic, May 9th, 1895. Physical examination revealed a cavity in the right lung as large as a hen's egg. The sputum contained large quantities of tubercle bacilli. The other typical symptoms of consumption were duplicated in this case : night sweats, insomnia, emaciation, want of appetite, weakness, soreness, cough and bloody expectoration.

On the third day, May 11th, after preparatory treatment, applications of Bovinine and creasote per mouth and Bovinine and salt water to the lungs by atomizer, were commenced, with two hypodermic injections of ⅛ gr. pilocarpine each day, the object of which was to reduce the secretion of mucous in the membranes of throat and lungs.

Signs of improvement appeared almost immediately in

all symptoms, and by July 20th he felt so well that he concluded further treatment unnecessary. He then weighed 162 pounds, had no night sweats, slept well, had a good appetite, interest in his work, and felt like a new man, and nothing the matter with him. The big cavity was almost entirely healed. He decided to return to England, and has not been heard from since.

CONSUMPTION CASE.

TUBERCULOSIS OF THE LUNGS AND LARYNX.

By Dr. T. J. Biggs.

Maggie Wurtz; age 29; May 20th, 1895. Gave a family history of consumption, of which her mother and sister had died. Complained of weakness, soreness in chest, night sweats and sleeplessness, loss of appetite, a cough with blood-streaked expectoration, and emaciation, a large tubercular deposit in the apex of the right lung, and a cavity in the lower part of the upper lobe of the same; also tubercular laryngitis. She had been under treatment at two of the best-known hospitals in the City of New York, without apparent benefit, growing steadily worse in every symptom; insomuch that the usual hopefulness of consumptives had entirely left her, feeling convinced from her rapid decline that she would never get better.

Having attended in the meantime to the regulation of bowels and kidneys, I began on the third day, May 22d, to have her take a teaspoonful of Bovinine in milk and whisky every three hours, with one minim of creasote in a capsule; and the next day commenced the internal application of Bovinine to the lungs in a saline solution (a teaspoonful of salt to the pint of water) through an atomizer, with an extra long curved glass tube to throw the solution well into the larynx; using one ounce of the solution once every other day, until the 18th of August; continuing also the treatment above described.

Within about one week from the beginning of treatment, the patient exhibited signs of decided improvement. She slept nearly all the night, her night sweats were almost wholly discontinued, her cough and expectoration had diminished, her appetite had improved, her strength was renewed, and this rapid improvement continued, until September 11th, 1895, she showed a weight of 130¼ pounds,

against 98 at the beginning of treatment; the lung cavity entirely healed; no symptoms whatever of phthisis. No defect save a very slight dullness at the apex of the lung, due to encysted tubercle.

January 24th, 1896, the large lung cavity was still undiscoverable, but a small tuberculous deposit in the right apex, not yet quite absorbed, remained discoverable. Her complexion is growing ruddy; appetite and sleep good; no night sweat and no cough. The sputa, examined on the 25th, showed very few bacilli, much fewer than ever before. Not heard from later.

CONSUMPTION CASE.

TUBERCULOSIS OF THE LUNGS, LARYNX AND PHARYNX.

By Dr. T. J. Biggs.

Francis La Mar; French; age 35; August 10th, 1895; had been treated in a number of institutions in France without any decided benefit; cavity in right lung, size of a silver dollar; tubercular deposit in the apex; and a tuberculous condition of larynx and pharynx. His weight was 110 pounds, to which he had been reduced in one year from 170 pounds. Suffered great pain throughout the diseased lung, with painful cough, profuse muco-purulent and blood-streaked expectoration, night sweats, sleeplessness, extreme weakness, loss of appetite, and inability to retain food on the stomach. Despaired of recovery.

In view of the inability to retain nourishment, the treatment was commenced, or preceded, by appropriate medication, with Bovinine every two hours. The first two doses were vomited, but the third dose was retained, as were also its successors, without further trouble; and this nourishment was retained, with the happiest effect, right along through the course of treatment.

[It is a common experience that a little perseverance with Bovinine, by drops, or with crushed ice and a little wine will in the worst cases directly secure retention and strengthen the stomach for increased quantities. It is even probable that a dose vomited, if not too large, prepares, nevertheless, a better reception for the next.]

On the fifth day, a hypodermic injection of two drops creasote in ten drops liquid albolene was given between the shoulder blades, and Bovinine was sprayed into the

larynx and pharynx with an atomizer. These applications were continued once a day for five days. After this, gave a capsule of two drops creasote every three hours, continuing the Bovinine spray and dosage as before.

October 16th, 1895. The same treatment has been continued, except that the Bovinine was increased to a wineglassful every three hours. The patient already weighs 119 pounds, and says he feels like a new man; has very little cough or expectoration, with no blood; no night sweats; sleeps well and undisturbed; has a good appetite, and enjoys a light diet in addition to continued Bovinine. The cavity in the lung is evidently healing rapidly, and is about half restored, while the condition of the larynx and pharynx is likewise much improved.

CONSUMPTION CASE.

By Dr. T. J. Biggs.

Tom Hines; age 30; September 6th, 1895; tubercular phthisis; cavity one and a-half inches in diameter, in right lung; all the usual symptoms; pain throughout right lung, almost amounting at times to angina pectoris; appetite lost, and weight reduced to 98 pounds. Two days were given to regulation of bowels, and on the 9th commenced taking a wineglass of Bovinine and two drops beechwood creasote, every three hours. November 7th, his weight had increased to 114 pounds (16 pounds gain in 30 days); the lung cavity was noticeably decreased; and all symptoms substantially removed.

CONSUMPTION CASE.

TUBERCULOSIS OF LUNGS AND LARYNX, WITH TUBERCULAR ULCER OF THE EPIGLOTTIS.

By Dr. T. J. Biggs.

Mildreth Noble; age 37; October 2d, 1895; an advanced stage of both pulmonary and laryngeal tuberculosis; a tubercular ulcer of the epiglottis; a large tuberculous cavity in the right lung; all concomitant symptoms; lost appetite, and weight reduced within three months from 131½ to 99½ pounds. The tubercular ulceration of the epiglottis made the pain of swallowing, with or without food, a constant torture.

Treatment was at once commenced with two drachms Bovinine in cream, every two hours. Three days of this alone sufficed to develope signs of marked improvement. especially in vigor and animal spirits, which had naturally been at the lowest. Bovinine was increased, with creasote in capsule. Examination after two weeks of this treatment revealed a remarkable rapid improvement. The night sweats were gone, she slept well, her cough and expectoration had notably diminished, the blood streaks had entirely disappeared, and by December 6th weight had increased to 116 pounds; the lung cavity was decreased by fully two-thirds, and in every symptom the liked marked improvement was manifest.

Meanwnile, the tubercular ulcer of the epiglottis had been sprayed with Bovinine and salt water three times a day. After the first three sprayings, the healing and pain destroying efficacy always attendant on Bovinine hade nabled her comfortably to swallow, while the main effect was two-fold, and was beautifully realized: (1) as topical nutrition, to build up healthly granulation and repair; (2) to supply leucocytes—Nature's great germicide—in sufficient number to overpower the congregated bacilli of tuberculosis and eradicate ptomaines and other toxins from the blood. The result has been a continous process of healing, practically complete by February 20th, 1896. She then decided to go into the country, and has not since been heard from, as she would have been, assuredly, if she had any further trouble.

QUICK CONSUMPTION.

By Dr. T. J. Biggs.

Mary Burns; age 30; December 21st, 1895; as usual, the last resort in an advanced stage of consumption; all the symptoms detailed in previous cases. Six months ago, perfectly well, weighed 129, now 110 pounds; with a tuberculous deposit and a large cavity in the right apex, extended to the circumference of half a dollar. Bovinine as usual, with creasote, and up to January 15th, 1896, the usual rapid improvement manifested; night sweats disappeared; also the blood in a reduced expectoration; sleeps well; better in color; contraction of the cavity shows arrested consumption of the lung and beginning of repair; continued observation and treatment showed steady improvement, on Jan-

uary 26th, 1896, April 2nd, June 2nd, November 17th, until the latest, June 14th, 1897, more than a year and a-half after first treatment; in all respects quite well; weight, 134 pounds, or five pounds better than ever before; no remainder of the great cavity, which is apparently healed; slight dullness over right apex from encysted tubercle; and but faint trace of bacilli in sputum.

CONSUMPTION CASE.

By Dr T. J. Biggs.

Mary Blankmeyer; age 26; January 1st, 1896; matured phthisis; 30 pounds lost in a year; a tubercular deposit in the right apex and a cavity in upper lobe of same lung. As digestion was good, Bovinine treatment was directly available at once. Improvement was steady and marked; when last seen, February 12th, the gain of flesh was seven pounds, night sweats had ceased, only a slight cough remained, microscopic examination revealed few bacilli in sputum, she sleeps well, and feels entirely well.

CONSUMPTION CASE.

By Dr. T. J. Biggs.

William Cassidy; age 35; January 2nd, 1896; all the decisive symptoms of advanced pulumonary tuberculosis; weight reduced in six months from 179 to 120 pounds; general anæmia; appetite gone, and digestion so upset that the most delicate prepared foods could not be retained on the stomach; cavity in the upper lobe of the right lung, and a large tuberculous deposit at the apex.

After one week of Bovinine treatment, the condition was materially improved; third week, improvement very marked; night sweats entirely abolished; cough and expectoration greatly diminished; sleeps better; and can now enjoy and digest ordinary food. Similar reports of progress at every examination, covering a year and a-half; from January 2nd, 1896, to February, to May, to July, to November, and to February 5th, 1797, with uninterrupted convalescence; weight, 152 pounds; cavity entirely healed. Last seen, June 16th; good condition unchanged; still no bacilli in sputum; feels perfectly well, in fact, better than ever; no shortness of breath on exertion (as a longshoreman). This patient had lost 59 pounds in six months, when first seen, and was a wreck in lungs, blood, and

stomach, unable to retain the most delicate of the prepared foods, and thus incapable of being nourished and sustaining life by any means short of Bovinine; which, however, proved all-sufficient for every purpose.

CONSUMPTION CASE.

By Dr. T. J. Biggs.

John Matthews; age 37; April 9th, 1896; tubercular deposit in the right apex, and a large cavity in upper lobe; lung much contracted, admitting of no complementary air, the expiration still shorter than the inspiration, and puffing; insomnia, with profuse night sweats; cough with muco-purulent blood-streaked expectoration laden with tubercle bacilli; emaciated, anæmic and cachectic, from the previous condition of a large and robust man; no appetite or digestion; constipated. On commencing Bovinine treatment he began to improve immediately; May 4th, the night sweats had entirely ceased; was sleeping well; appetite and digestion restored, with relish for light meals of vegetable and animal food; the lung cavity healing up and diminishing; the lung retaining complementary air; gain in weight, color and energy, enabling him to work steadily.

CONSUMPTION CASE.—A CHANCE CASE.

By Dr. T. J. Biggs.

Dr. H——, now in New York, in 1894 was ship's surgeon on a sailing vessel from San Francisco to Australia, and in that capacity had some care of a consumptive, who was making the same voyage for his health. Many passengers became very sea-sick, including the consumptive patient, whose attack was of extraordinary severity, insomuch that for two days no nourishment could be taken, and the imminence of absolute starvation was a complication of pulmonary disease with but one issue. Fortunately, the patient had with him a supply of Bovinine, which his physician, Dr. Lain, of San Francisco, had advised him to carry. This Dr. H——resolved to apply per rectum. The enema was retained, and the patient's condition showed improvement within an hour. The next day he was feeling much better, and had no sea-sickness (usual effect of Bovinine at sea); doses of ten drops of port wine began to be retained on the stomach, and to be increased. After the tenth day,

he showed not only a complete recovery from sea-sickness and starvation, but a marked improvement over his phthisical condition; and having since continued the Bovinine, he now seems to be entirely well.

CONSUMPTION CASE.

By Dr. T. J. Biggs.

Dietrich Ulmer; age 36; October 20th, 1896; in R—— Hospital, New York. All symptoms of advanced stage of pulmonary consumption; well-developed cavity in the right lung, with severe pain; normal weight, 160 pounds, now 120 pounds. The physician in charge continued his medication, with the addition of Bovinine every two hours. The pain disappeared in the first week of this treatment. Records of November 10th, 24th, December 12th, February 5th, 1897, and June 14th, showed constant and radical improvement, until when last seen, June 14th, after eight months, he was perfectly well, and growing in strength and flesh, having gained 14 pounds, and does not tire in his labor, employed regularly as a truckman.

CONSUMPTION CASE.

By Dr. T. J. Biggs.

Alice Birney; age 27; October 8th, 1896; in R——Hospital, New York; all symptoms of pulmonary tuberculosis; cavity in right lung; had suffered for eigthteen months, reducing her weight from 126 pounds to 102. Bovinine and medical treatment up to November 24th showed a gain of four pounds weight; expectoration lessened, with but traces of bacilli; nights sweats entirely ceased; appetite and sleep good.

Later it transpired that the present tuberculosis had supervened upon a fibroid phthisis, and was thus very seriously complicated with cheesy degeneration of the lungs. Now an unlucky cold gave her a relapse; but notwithstanding both the complication and the set-back, February 6th, 1897, finds the patient out of hospital and doing well; in improved general condition; weight 114, a gain of 12 pounds; the cavity healing up; expectoration slight, with only a trace of bacilli; no night sweats; sleeps well; improved color, heart action and digestion; barely a trace remains of the cheesy degeneration. Last seen June 14th; weight, 118½ pounds, a fresh gain of four and a-half pounds; feels

perfectly well; the cavity still healing, and now two-thirds healed.

This issue to the first check experienced (from extraordinary conditions) in the Bovinine treatment of consumptives is among the best of confirmations.

CONSUMPTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

Edgar Jones; age 26; May 21st, 1897; all symptoms of tubercular phthisis; cavity in upper lobe left; expectoration contained bacilli tuberculosis in great numbers; family history of consumption; perfectly well one year ago, but in the last six months had lost 17 pounds. Medical and Bovinine treatment; continued until last seen, June 16th, when he had gained three pounds; the night sweats, cough and expectoration much diminished, but bacilli still plentiful; sleep and appetite improved.

CONSUMPTION CASE. (CASEOUS.)

By Dr. T. J. Biggs, Sound View Hospital.

Mary Kelley; age 39; case of Dr. M——; September 8th, 1897; caseous phthisis, a form of pulmonary consumption, characterized by obstruction of tissue, resulting from the cheesy degeneration of inflammatory products in the lungs, and the subsequent softening and destruction of the caseous or cheesy matter, together with more or less of the lung tissue proper. Since June 1st, 1897, her weight had been reduced from 126½ to 94 pounds. All symptoms of a well-defined case. Two weeks after beginning medical and Bovinine treatment, the patient's condition was much improved, her sleep and digestion were normal; October 9th, all symptoms substantially overcome, and a gain of 12¾ pounds in weight. Later seen, November 16th; continued decidedly gaining, no trace of bacilli in sputum, three pounds more in weight, sleep good and refreshing, appetite good, expectoration and night sweats rare and slight.

CONSUMPTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

Mary Flaherty; age 34; October 4th, 1897; tubercular phthisis, of two years' progress; previous weight, 120½ pounds; present, 94 pounds; softening in progress; an unusual variety of symptoms and complications [omitted],

rendering prognosis decidedly unfavorable. Medical treatment at various points, and Bovinine, 30 drops in iced grape juice hourly for the first three days; then increasing gradually, until by the 28th the patient's stomach was so much strengthened that she was able to take a wineglassful every four hours. December 16th, the patient was giving every evidence of restored health; not the slightest trace of tubercle bacilli; all symptoms had disappeared; appetite, digestion, and sleep normal; weight, 119¾ pounds. She was discharged December 27th, with every indication of cure confirmed.

CONSUMPTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

George S——; age 24; January 1st, 1898; advanced stage in all symptoms of pulmonary tuberculosis; cavity of the size of a half-dollar in right upper lobe; deposit in left apex; also tubercular laryngitis. Medicinal and Bovinine treatment, as usual, and daily applications of iodoform-Bovinine to the throat by means of a swab. When last seen, January 20th, patient had gained four pounds in weight, his cough was very slight, his night sweats had disappeared entirely, digestion and appetite were improved, and the cavity was healing.

CONSUMPTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

Ezra K——, Stamford, Conn.; age 26; February 1st, 1898; tuberculosis confined to right lung, with apex deposit, and a cavity in the upper lobe; case of six months' standing. Commenced treatment with a hypodermic injection every morning, between the shoulder blades, of oil eucalyptus, creasote, tincture iodine, and liquid albolene; with Bovinine internally, as usual. Continued this and the daily hypodermic injection to the 12th, when so decided improvement appeared that the injections were discontinued, and the same dose was now given in capsules three times a day, with a wineglassful of Bovinine every two hours. February 26th, the cough had utterly disappeared, the night sweats had ceased, digestion was good, five and three-quarter pounds had been gained in weight, the blood was nearly normal, and on March 8th, examination proved

that the cavity was entirely closed, and, except a microscopic trace of bacilli, there was not a single evidence of disease.

CONSUMPTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

Ella S——, Jersey City, N. J; age 34; April 3d, 1898; treated for a year past by prominent city physicians, some for gastritis, some for anæmia, etc.; but all the time getting worse. I first turned my attention to her blood, which I found, though normal in color, deficient in red corpuscles and hæmaglobin. Though this proved an anæmic condition, I was not satisfied that anæmia was the cause of the trouble, but believed it to be a symptom of a cause. A thorough examination of the lungs revealed a slight deposit in the right apex, with a cavity about the size of a hazel nut in the middle lobe. Sputum revealed slight traces of tubercle bacilli. Patient had lost 25 pounds within the year; had persistent diarrhœa, loss of appetite. night sweats, insomnia, and occasional attacks of angina pectoris.

After medical preparation, Bovinine every hour was commenced, with creasote, etc., injections. Patient began to improve at once, and has not had a single backset to the present time. At the present day (May 23d) the patient's condition is really splendid; her weight has increased from 97 to 107 pounds; she sleeps well; enjoys and digests her food and assimilates it; her night sweats have ceased; her diarrhœa has disappeared; her color has returned; and she says she feels well. There is not the slightest trace of tubercle bacilli discoverable in sputum by the most rigorous search, nor any albumen in urine. Physical examination, in fine, shows the lung cavity absolutely healed.

CONSUMPTION AND APPENDICITIS CASE.

By Dr. T. J. Biggs, Sound View Hospital.

P—— G——, Glenville, Conn.; Russian; age 36; sent by a brother physician, under whose care he had been for more than a year, but with no benefit. Received April 16th, 1898. Examination of right lung revealed a large apex deposit, and a small cavity in the upper lobe. There was also a slight deposit in left apex. Scrapings were

taken from fauces and throat, and a large quantity of tubercle bacilli were found. Bovinine treatment continued for six weeks, during which an operation for appendicitis was performed, with novel and successful treatment, elsewhere described, by which time the pulmonary condition was greatly improved, and patient discharged with attention and observation to be continued.

CONSUMPTION AND FÆCAL IMPACTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

Angelo B——, Portchester, N. Y.; age 40; June 4th, 1898; general tuberculous condition, centred most severely in the right lung, with a cavity in the upper lobe, and also an apex deposit. System run down, and anæmic. Was put on suitable remedies, with Bovinine every three hours. Patient suffered extremely from constipation, and the night of the 10th was in great pain, and examination revealed fæcal impaction. Laparotomy was performed, and the impaction was brozen up. The next evening he complained again of great pain, from a hard mass found filling the rectum up to the sigmoid flexure. The reaction of hydrogen peroxide on Bovinine was then employed in the rectum, with a most gratifying effect from its effervescence, in resolution of the mass, which, within four or five minutes after the injection, passed out entire, without any pain; the patient expressed great relief. June 20th, patient began to feel stronger, enjoyed his food and slept well, and showed a much better color. August 3d, cavity entirely healed, and apex deposit encysted; gain of 13½ pounds; had corpuscles from 1,100,000 to 2,300,000, and hæmaglobin nearly normal; no trace of bacilli.

CONSUMPTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

Mary C——, Stamford; age 30; November 18th, 1898; had been under treatment for six months, under the care of no less than six physicians, four of whom, severally, pronounced her case to be (1) chronic bronchitis; (2) atonic dyspepsia, and (3 and 4) heart trouble, and her condition had been steadily growing worse. When she entered Sound View Hospital her temperature was 102¾; pulse ranged from 120 to 140; a cough with glairy sputum; res-

piration from 30 to 50 per minute; pain in chest; hot, dry skin; dry tongue; deranged digestion; and great prostration. Patient was thoroughly discouraged, and so prostrated that I feared the condition had continued too long to admit of positive benefit.

Bovinine was given every hour; hypodermic injections of creasote, etc., between the shoulder blades, three times a day. Also her throat was swabbed well down into the larynx, as far as a probing could be carried, with Bovinine pure. Inhalations of oxygen gas were given every three hours. In ten days she showed a decided improvement, respiration and pulse slower, fuller and stronger; cough less frequent and severe; expectoration much reduced; slept fairly well; and was able to move about without exhaustion as before.

December 16th she had gained eight pounds in weight, and was still rapidly improving.

December 20th, on physicial examination, the tympanitic note could no longer be found by percussion; the vesico-bronchial breathing with moist rales had entirely subsided; her temperature was but slightly over normal; and microscopic examination of blood revealed almost a normal standard of quality.

December 22nd, patient was discharged from hospital with instructions to return twice a week, that the throat might be swabbed out with Bovinine.

CONSUMPTION CASE.

By Dr. T. J. Biggs, Sound View Hospital.

Miss E. K.——, Stamford; Swede; age 19; December 28th, 1898; incipient tuberculosis of right lung in apex. The general symptoms were not well defined. My attention was called to the lung by a sharp, shooting pain that she complained of, which was supra clavicular. So slight were her symptoms, I made a microscopic examination of the early morning throat secretions, in which I was able to find traces of the tubercle bacilli. She was put on Bovinine every two hours, and her improvement was rapid and uninterrupted. By January 14th, her cough had entirely ceased, and the throat scrapings revealed no trace of the tubercle bacilli. January 20th, a thorough phonendoscopic examination of the lung revealed the tubercular deposit completely encysted and partially absorbed.

February 1st, 1899, she was discharged, health completely restored, having gained seven pounds in weight.

CONSUMPTION CASES, ETC.

By I. C. Reshower, M.D., New York.

About a year ago I was called to a child of two and a-half years, with bronch-pneumonia; consolidation in both lungs, involving nearly the whole of the right lung; respiration extremely shallow and panting; the lips were blue, and the child appeared to be in its last hour. I gave it oxygen and teaspoonful doses of Bovinine in milk every hour and a-half. Inside of six hours the change for the better was much marked, breathing much better, blueness all gone, and the child in every way showed a very good chance of recovery, which, happily, it accomplished

About six months ago, a young woman of 18 came to me, complaining of cough, night sweats, and pain in the chest; cold, clammy hands, no appetite, and malodorous breath. Examination showed incipient phthisis, which bacteriological examination verified. I began with 2 m. doses of creasote t. i. d., and hydrocyanic acid and cannabis indica for the hacking cough and tickling which she had in the throat. She continued in this way for two months, with very little improvement, even in spite of her hygienic surroundings, which were of the best. I then decided that Bovinine might do good, and I tried it; beginning with teaspoonful doses in milk every four hours; the dose to be increased ten drops every day, until three teaspoonfuls every four hours were being taken. In one month the improvement was marked. The girl now sleeps well, has an excellent appetite, her cough is completely gone. She is still on Bovinine only, and I am convinced from this case and others of phthisis that it is the food par excellence. In my hands it has proved so useful in tubercular disease that I have yet to find a case which it will not benefit.

In tubercular lung disease, where cavities are already formed, it prolongs life better and more surely than any other therapeutic agent.

PULMONARY TUBERCULOSIS.

By T. J. Biggs, M.D., New York.

The anæmia of tuberculosis differs from some other forms in being, as a rule, the result of the deleterious effect of toxines upon the blood, or upon the blood-making organs. Simple anæmia at times precedes the development of tuberculosis, and becomes a predisposing factor to infection with the specific germs, and in the course of the disease such anæmic states may also result from gastro-intestinal complications.

While the toxic form cannot always be distinguished because frequently associated with the other toxines, it must be recognized, nevertheless, as the chief cause of anæmia in all contagious and infectious diseases. In its treatment the indication is, of course, the prevention of the production of toxines within the body, which can only be accomplished by the removal of the pathogenic germs, or by the production of immunity from their toxines.

If infection occur in healthy persons, their tissues, and especially the blood, are capable of offering successful resistance, and the organism is preserved in its integrity. In the established disease, the resisting power of the particular patient has evidently been insufficient, either by reason of the organisms being overpowered by the excessive quantity of infecting material, or by reason of minor resistance on the part of the tissues where the specific germs gained entrance.

This view is uniformly accepted, and, in the light of pathological investigation, as well as of clinical experience, is well proven. We must, therefore, not lose sight of the resisting power of the patient, and its increase must be accomplished, if we expect to deal successfully with the disease. In the application of specific culture products in pulmonary tuberculosis, observations have amply confirmed this view; for the best results from such treatment are obtained in cases where the general strength of the patient is still good, and especially when the blood approaches a normal standard in the corpuscles and hemaglobin. Most patients show a considerable loss in this respect, even in the earliest stages, and these losses have even been observed to progress, despite of good appetite, and in patients who for the time gained in weight.

It is, therefore, most rational to seek the regeneration of the blood. In addition to proper dietetic and hygienic management, I naturally looked for a remedy to accomplish this. But all the supposed remedies for this purpose have not only failed in the majority of instances, but have frequently interfered with the improvement in other respects, by disturbing the digestion and assimilation of food.

After considerable experimentation with all the pharmaceutical remedies, with more or less unsatisfactory results, I discarded them all, and determined to try and bring about a perfect state of nutrition by natural means, and resorted to Bovinine, and so far have accomplished my object most satisfactorily. From the first to the present time I have not had a single case that did not improve materially. I have thus treated six cases where tubercular ulceration of the epiglottis was so severe that they could not swallow anything without the acutest suffering. In these cases Bovinine was applied by a steam atomizer, with the result that in each case the condition in the epiglottis was so relieved that food could be swallowed with comfort, and entire healing was rapidly effected.

In all cases treated by me it was well borne by the stomach and the appetite at once improved, and all other symptoms were alleviated. Examinations of the blood were made from time to time, and in all cases the improvement of the blood was rapid, with degeneration, fragmentation and disappearance of the tubercle bacilli from the patient's sputum. This proves the germicidal action of the blood, and the efficacy of this means of improving its condition.

POINTS ON TREATMENT.

In nearly all cases of consumption, anæmia, etc., I find the secretions sluggish, and the heart action impaired. The proper preparatory treatment for these conditions, before introducing Bovinine, is, therefore, very important. That the system may be able to throw off waste by normal functions is obviously necessary for the due appropriation of nutrition, as well as for other vital purposes. Among the first indications, therefore, are: to regulate the bowels; to attend to the condition of the kidneys; and if the urine shows any abnormality, to correct it, which may generally

be done by any good lithia water, or lithia tablets dissolved in sterilized soft water; at the same time, tone up the heart action and digestion. It is not here intended, however, to suggest any special medication, as every physician will, of course, proceed according to his own ideas or principles.

PULMONARY CONSUMPTION.

SYNONYMS.—Phthisis pulmanalis; phthisis; consumption.

DEFINITION.—Four varieties of pulmonary consumption are now admitted to exist: Pneumonic phthisis; tubercular phthisis; fibroid phthisis; acute miliary tuberculosis.

As these forms present differences at all points, they will be described separately.

PNEUMONIC PHTHISIS.

SYNONYMS.—Chronic catarrhal pneumonia; catarrhal phthisis; caseous pneumonia; caseous phthisis.

DEFINITION.—A form of pulmonary consumption characterized by the destruction of the pulmonary tissue resulting from the caseation or cheesy degeneration of inflammatory products in the lungs and the subsequent softening and destruction of the caseous matter, with greater or less destruction of the pulmonary tissue; characterized by hectic fever, cough, shortness of breath, purulent expectoration, and more or less rapid prostration.

CAUSES.—The predisposing factor in the etiology of pneumonic phthisis is a strumous or scrofulous diathesis, or a condition of lowered health, the result of various unfavorable hygienic influences.

The exciting causes are catarrhal pneumonia in any portion of the lung, but especially at the apex; inflammation occurring about a blood clot; inhalation of irritant particles occurring in certain occupations, to wit: Weaving, grinding, mining, hatters, millers, cigar makers, and the like.

PATHOLOGICAL ANATOMY.—When pneumonia terminates in resolution the inflammatory products are absorbed by first undergoing a fatty metamorphosis. If the fatty metamorphosis be imcomplete, the cells atrophied and undergo the caseous degeneration, which consists in the absorption of the watery parts and the fatty degeneation of the cellular elements and the granular disintegration of the

fibrinous material, so that ultimately a soft, solid mass is produced, yellowish in color, having appearance of cheese.

The destructive changes are thus described by Niemeyer: "Cells, the products of inflammation, accumulate in the alveoli and minute bronchi, crowd upon each other, become densely packed, and thus by their mutual pressure they bring about their own decay, as well as that of the lung textures, by interfering with their nutrition, the alveolar walls being also themselves damaged by the inflammatory process."

The position of the catarrhal pneumonia resulting in the above changes is usually at the apex, but it may occur at any portion of the lungs, or a whole lung becomes infiltrated, and undergoes the cheesy degeneration (phthisis florida).

In many cases tubercle is deposited in the inflamed lung, hastening its destruction and the formation of cavities.

Symptoms.—Pneumonic phthisis occurs in three forms, the chronic, the sub-acute and the acute.

Chronic form. The origin is rather insidious, the invidual being susceptible to "colds," or "catarrhs," on the slightest exposure; gradually a persistent cough, with the expectoration of muco-pus, is established, each severe cold being accompanied with chill, fever, pain in the chest, and either slight hemorrhage or blood-streaked sputa. Finally the catarrhal symptoms become persistent, with morning chills, evening fevers and rather profuse night sweats, distressing cough, profuse muco-purulent sputa, great weakness and exhaustion, loss of appetite and feeble digestion, the symptoms growing persistently worse, death occurring from exhaustion after one or two years' duration.

Sub-acute variety. History of an acute attack of pneumonia of one or two weeks' duration, followed by a decided improvement, but not complete recovery. After a lapse of some weeks or months, symptoms of pulmonary softening begin, destroying the lung structure and forming cavities, accompanied by chills, fever, night sweats, emaciation, cough, muco-purulent and blood-streaked expectoration, the patient dying from exhaustion within the year.

Acute variety, the so-called phthisis florida, runs a rapid course, beginning as a catarrhal pneumonia, involving the whole of one or part of both lungs, associated with rapid loss of flesh and strength, high but variable temperature.

103°-105° F., with remissions, profuse night sweats, shortness of breath, severe cough, profuse, purulent and blood-streaked sputa, loss of appetite, feeble digestion, rapid emaciation, the patient succumbing in a few weeks or months, from exhaustion.

A decided remission in the local and general symptoms of the acute variety may occur, the disease afterward pursuing a more chronic course.

INSPECTION.—Shows deficient respiratory movements of the diseased portions of the lungs.

PALPITATION.—Increased vocal fremitus over the consolidated lung tissue and cavities.

PERCUSSION.—The percussion note varies from a slight impairment of the normal note to dullness, and when cavities are formed, associated with scattered points of the tympanic or hollow note. If the cavities communicate with a bronchial tube the cracked-pot or cracked-metal sound is elicited. If the cavities are filled with puss the percussion note is dull. If the puss be expelled, the tympanitic or cracked-pot sound returns.

AUSCULATION.—The vesicular murmur is unimpaired in those parts free from disease; it is feeble or indistinct if many bronchioles are obstructed; and is harsh or blowing if the bronchioles are narrowed. The inspiratory sound will be jerky, and the expiratory sound prolonged and blowing when the lung has lost its elasticity.

Associated with the impaired vesicular murmur is a fine, dry, crackling sound (crepitation), appearing at the end of inspiration. If bronchitis be associated, large and small moist or bubbling rales are heard during the respiration.

When cavities form, either bronchial or broncho-cavernous respiration is heard, associated with more or less distinct gurgling rales. If the cavity be free from puss and have firm walls, the breathing is more amphoric in character.

DIAGNOSIS —Catarrhal bronchitis has many points of resemblance to pneumonic phthisis. The subsequent course of the latter, with the high temperature, prostration, emaciation, physicial signs, should prevent error.

Tubercular phthisis is often confounded with pneumonic phthisis, an error difficult to prevent in many cases.

PROGNOSIS.—Acute variety, the phthisis florida, usually terminates fatally within a few months.

The sub-acute and chronic varieties may, under judicious treatment and favorable hygienic conditions, be arrested, the caseous matter partly expectorated and partly absorbed, leaving more or less loss of structure, cicatricial tissue suppling its place, which after a time contracts, causing more or less contraction of the chest walls.

Cases not properly treated, either from carelessness or poverty, succumb after a year or two.

TREATMENT.—Medical treatment symptomatic. In this condition where the lung has become thoroughly diseased nature is unable to properly nourish the body and the patient finally dies from exhaustion, the result of non-arieation of the blood. Nothing can be more exactly indicated than Bovine blood. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient, and continued for at least six months after all symptoms have subsided. Change of climate, of course, is most essential, and out door life.

TUBERCULAR PHTHISIS.

SYNONYMS. — Tuberculosis; consumption; incipient phthisis.

DEFINITION.—The deposition of tubercle in the lung structure, which undergoes softening, followed by more or less loss of the pulmonary tissue proper; characterized by fever, cough, dyspnœa, emaciation and exhaustion.

CAUSES.—Chiefly hereditary; closely associated with scrofula and struma; probably contagious under certain conditions; secondary to catarrhal (caseous) pneumonia; theory of the "bacillus tuberculosis" of Koch is still subjudice.

PATHOLOGICAL ANATOMY.—Tubercle is a grayish-white, transculent and semi-solid granulation, about the size of a millet seed, most commonly deposited in the walls of the bronchioles, exciting a low form of inflammation, the result of its own death. The masses of tubercle soon undergo softening (cheesy transformation); the lung structure is secondarily affected, undergoes softening, which results in more or less destruction of the tissue, whence cavities are formed.

The inflammation may extend to the small arteries, causing hemorrhage.

The deposit of tubercle is generally at one of the apices, soon spreading to other parts; depositions may also occur in the brain, intestines and liver.

The pleura is usually the seat of a chronic inflammation (dry pleurisy), resulting in the obliteration of the pleural cavity.

Symptoms.—The symptoms correspond closely to the stages of deposition, of softening, and of the formation of cavities.

The development is insidious, with increasing dyspepsia, irritable heart, a light, dry, hacking cough, referred to the throat or stomach, scanty, glairy expectoration, gradual loss of weight, impaired muscular strength, pallid appearance, more or less copious hæmoptysis often following. Pain, sharp in character, below the clavicles, is often present.

The beginning of softening is announced by increased cough, freer expectoration, dyspnœa increased on exertion, morning chills, evening fever, night sweats—the so-called hectic fever—diarrhœa, increased emaciation and weakness, the patient, however, continuing very hopeful.

With the formation of the cavities, the cough is more aggravated, with profuse and purulent expectoration, at times containing yellow striæ, the amount depending upon the number and size of the cavities; hæmoptysis not common at this stage; the pulse rapid and weak, increased hectic, burning of the soles and palms, copious night sweats, greater debility and emaciation, with œdema of the feet and ankles, denoting failure of the circulation, death soon following from asthenia, the mind clear and hopeful to the end.

Inspection.—First stage, often shows a slight depression in the supra-clavicular, and at times in the infra-clavicular regions.

Palpation.—Second stage, the vocal fremitus is slightly increased.

Percussion.—First stage, slight impairment of the normal percussion resonance can somtimes be elicited. Second stage, the resonance is impaired, and may be even dull. Third stage, dullness with circumscribed spots of the amphoric, or tympanitic or cracked-pot sound.

Auscultation.—First stage, inspiration jerky, expiration prolonged, the pitch higher than normal, the inspiration associated with crackling rales.

Second stage, vesculo-bronchial breathing, associated with sub-crepitant and large and moist or bubbling, and localized gurgling rales.

Bronchophony in its various degrees is associated with the second and third stages of tuberculosis.

Complications.—Tubercular diseases of the brain, larynx, pleura, intestines and peritoneum; perineal abscess leading to the fistula.

Diagnosis.—The early diagnosis of tubercular phthisis rests mainly on the history, together with the symptoms and physical signs. In the first it is often mistaken for dyspepsia, anæmia, malarial fever, or disease of the heart.

Prognosis.—In the main unfavorable, although under proper treatment, change of climate and like favorable conditions life may be prolonged for years. The question of perfect recovery is, to say the least, doubtful.

Treatment.—Medical treatment symptomatic. In this condition, where the lung has become thoroughly diseased, nature is unable to properly nourish the body and the patient finally dies from exhaustion the result of non-ariation of the blood. Nothing can be more exactly indicated than Bovine blood. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient, and continued for at least six months after all symptoms may have subsided. Change of climate is, of course, most essential, and out door life.

FIBROID PHTHISIS.

Synonyms.—Chronic interstitial pneumonia; cirrhosis of the lungs; Corrigan's disease.

Definition.—A hyperplasia (thickening) of the pulmonary connective tissue, resulting in atrophy and degeneration of the vesicular structure, associated with bronchial inflammation; characterized by cough, profuse expectoration, fever, emaciation, and ultimately death by asthenia.

Causes. — Hereditary; inhalation of irritants; chronic bronchitis; alcoholism.

Pathological Anatomy.—Thickening of the bronchial mucous membrane and dilatation of the air tubes; hyperplasia of the pulmonary connective tissue, resulting in the compression and consequent destruction of the vesicular structure, which is assisted by the contraction of the newly formed tissues. Sooner or later catarrhal pneumonia results, the product undergoing the cheesy degeneration, cavities being formed, and as a result of the long-continued suppuration, tubercular depositions occur, hastening the destruction of the lung tissue.

Prof. Da Costa has reported a number of cases of "grinders' phthisis," in whose sputum was found the "bacillus tuberculosis," in whose family history there were no traces of consumption.

Symptoms.—The course is chronic, beginning as a bronchial catarrh, worse in winter, better in summer, when, after several years, the cough becomes more continuous, the expectoration freer and muco-purulent, often raised in paroxysms, in large amounts, hectic fever develops, night sweats, dyspnœa and rapid emaciation, soon followed by œdema of the feet and ankles, the result of failing circulation, death occurring by asthenia.

Inspection.—Depression of the chest walls.

Percussion.—Impaired resonance, followed by dullness, with irregular spots of amphoric or tympanitic percussion note over the points of depression.

Auscultation.—First stage, vesiculo-bronchial, or harsh respiration, associated with large and small, moist or bubbling rales, followed by bronchial, croncho-cavernous and cavernous respiration, with circumscribed gurgling rales.

Diagnosis. — Beginning as a bronchial catarrh, slowly progressing, with the remission of the symptoms during the summer months, finally becoming progressively worse, with the formation of the cavities, and symptoms of asthenia, are the chief points in the diagnosis.

Prognosis.—The duration of fibroid phthisis is most protracted, six or twelve years being the average duration; death, however, is the inevitable termination.

Treatment. — Drug treatment symptomatic. In this condition, where the lung has become thoroughly diseased, nature is unable to properly nourish the body and the patient finally dies from exhaustion, the result of non-arieation of the blood. Nothing can be more exactly indi-

cated than bovine blood. Bovinine should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, and continued for at least six months after all symptoms have subsided. Change of climate is, of course, most essential and an out door life.

ACUTE PHTHISIS.

Synonyms.—Acute miliary tuberculosis; galloping consumption.

Definition.—An acute febrile affection, due to the rapid deposition throughout the body, but especially in the lungs, of the gray tubercle-granule; characterized by high fever, rapid pulse, hurried respiration, pain in the chest, cough, profuse expectoration and rapid prostration.

Causes.—Most common between puberty and middle life.

"That the gray granulation is deposited throughout the body, under the influence of certain conditions of irritation, it is necessary that a peculiar vulnerability of the constitution exist, in other words, that it be of the scrofulous type."

The result of caseous or suppurative changes in the lungs.

Pathological Anatomy. — "The gray granulation or miliary tubercle consists of a fine reticulation of fibres, with a mass of epithelioid cells and granules, and often having a giant cell for its centre."

The deposit is generally over both lungs and bronchial tubes, and is followed by hyperæmia, increase of secretion, having a viscid and adhesive character, and the destruction of all the tissues with which it comes in contact.

Deposits also take place in the brain, pleura, intestines, peritoneum and kidneys.

Symptoms.—The onset is usually sudden, with a chill or chilliness, followed by fever, 102°–104° F., rapid, dicrotic pulse, 120–140, cough, with scanty, glairy sputum, increased respiration, 30–50 per minute, pain in the chest, hot skin, dry tongue, deranged digestion and great prostration, the severity of the symptoms rapidly increasing, the sputum becoming more abundant and often rusty in color, with more or less frequent attacks of hemoptysis,

soon followed by headache, vertigo, sleeplessness, often delirium, coma and death.

If deposits have occurred in the meninges or the intestines, symptoms of these affections are superadded.

PERCUSSION.—The percussion resonance is normal until considerable deposits have occurred, when it is either slightly impaired or even slightly tympanitic. With the development of cavities the amphoric percussion note is present.

AUSCULTATION. — Vesiculo-bronchial breathing, associated with large and small, moist or bubbling rales, soon followed by bronchial and broncho-cavernous breathing, with large and small, moist and circumscribed gurgling rales.

DURATION.—Acute phthisis terminates fatally in from four to twelve weeks.

DIAGNOSIS.—Commonly mistaken for typhoid fever, with lung complications, an error that is readily made unless a close study of the history, symptoms and physical signs be made.

TREATMENT. — Medical treatment symptomatic. This condition, being of very rapid progress, complete and thorough treatment must be pushed. Consequently, in this condition, besides giving it in doses ranging from five drops to a wineglassful, as indicated, it should be employed rectally from once to three times in twenty-four hours, using one-third Bovinine and two-thirds salt solution.

DISEASES OF THE PLEURA.

PLEURISY.

SYNONYMS.—Pleuritis; "stitch in the side."

DEFINITION.—A fibrinous inflammation of the pleura, either acute, subacute or chronic in character, occurring idiopathically or secondarily; characterized by a sharp pain in the side, a dry cough, dyspnœa and fever. It may be limited to a part, or may involve the whole of one or both membranes.

CAUSES.—Idiopathic pleuritis is said to be due to cold and exposure, to injuries to the chest walls, or the result of muscular exertion.

Secondary pleuritis occurs during an attack of pneumonia, pericarditis, rheumatism, smallpox, Bright's disease, or puerperal fever.

Chronic pleurisy follows an acute attack, or is the result of tuberculosis, Bright's disease, or alcoholism.

Pathological Anatomy.—The course pursued by an inflammation of a serous membrane is hyperæmia followed by exudation of lymph, the effusion of fluid, its absorption and the adhesion of the membranes.

The first dry stage of pleurisy is hyperæmia or diffused, irregular redness of the membrane, with little specks of exudation. The second stage is characterized by copious exudation of lymph, more or less completely covering the membrane, giving it a dull, cloudy, or shaggy appearance. If the inflammation ceases at this point, it is termed dry pleurisy. The third, or stage of effusion, is characterized by the pouring out of a semi-fibrinous liquid; more or less completely filling and distending the pleural cavity, and floating in the fluid are fibrinous flocculi, blood and epithelial cells.

Absorption of the fluid and more or less of the exudative lymph soon occurs, the unabsorbed portion becoming organized, forming adhesions which obliterate the pleural cavity.

The effusion, if on the right side, pushes the heart further to the left; if on the left side, the heart is displaced to the right, the impulse often being seen to the right of the sternum. The lungs are also compressedandd is placed upward and against the spinal column, and, on removal of the fluid, expanded again; except in cases of chronic pleurisy, when the functional activity of the pulmonary structure is more or less permanently impaired.

Chronic pleurisy results when the fluid is not absorbed or when it is effused into the cavity in a slow and insidious manner. The membrane is irregularly thickened, with firm adhesions, fluid being found in the meshes, and depressions of the thoracic walls also occurring. The fluid may be serum, pus, (empyema), or pus and blood. Openings may form, through which there is a permanent discharge, either externally (fistulous empyema) or into the bronchi, or rarely, into the bowels.

Symptoms.—Acute attack: Begins with a chill, followed by a sharp lancinating pain (stitch) near the nipple or in

the axilla, aggravated by coughing and breathing, associated with a slight tenderness on pressure. The respirations are rapid and shallow, 30-35 per minute, a short, dry, hacking cough, moderate fever, compressible pulse, 90-120. With the effusion of liquid dyspnœa becomes aggravated, the cough more distressing, the cardiac action embarrassed, the countenance wearing an anxious expression, the patient usually lying on the affected side. With the absorption of the fluid the symptoms gradually ameliorate, convalescence becoming more or less rapid.

Subacute attack: Begins insidiously after cold, exposure and fatigue in those enfeebled. Patients usually complain of a sense of weariness, shortness of breath, aggravated on exertion, evening fever, followed by night sweats, short harassing cough, none of very scanty sputum; the pulse is small, feeble but frequent, 100-120 beats per minute. The characteristic pain in the side is usually wanting.

Chronic variety, irregular chills, fever, night sweats, dyspnœa, palpitation, embarrassed circulation, with more or less prostration.

Inspection.—First stage, bulging or fullness of the affected side, with obliteration of the intercostal spaces and displacement of the cardiac impulse.

Palpation.—Second stage, vocal fremitus feeble or absent over the site of the effusion, exaggerated above the site of the fluid. Rarely, fluctuation may be obtained.

Percussion.—First stages, may be slightly impaired.

Second stage, dullness or even flatness over the sight of the effusion; tympanitic percussion note above the fluid.

Ausculatation.—First stage, feeble vesicular murmur over the affected side, the breathing superficially, to prevent the pain; a friction sound, slight and grating or creaking, becoming louder as the exudation of lymph increases, limited usually to the angle of the scapula of the affected side, rarely heard over the entire side, accompanies the respiratory movements.

Second stage, feeble or absent vesicular murmur on the affected side, depending upon partial or complete compression of the lungs by the fluid. Above the fluid puerile breathing, and just at the upper margin of the fluid a friction sound may be heard.

The vocal resonance is diminished or absentover the site of the fluid and markedly increased above, ægophony being present at the upper margin of the fluid.

With the absorption of the fluid the vesicular murmur gradually returns, associated with a moist friction sound.

Diagnosis.—Acute pneumonia is often mistaken for the effusion stage of pleurisy. The points of distinction are, in pneumonia there is the pronounced chill, high fever, and characteristic sputa, bronchial breathing, exaggerated vocal fremitus and resonance, and no displacement of the heart, the reverse occurring in pleurisy.

Enlargement of the liver may be mistaken for pleurisy with effusion, the chief point of distinction being that, in enlargement of the liver, the superior line of dullness is depressed upon full inspiration, while in pleurisy with effusion inspiration does not modify the location of the dullness.

Prognosis.—Idiopathic pleurisy usually terminates in recovery within three weeks. Pleurisy the result of constitutional causes has its prognosis modified by the condition with which it is associated. Empyema, unless the result of a diathesis, terminates favorably. Double pleurisy is unfavorable.

Treatment.—Medical treatment symptomatic. As a food and tonic in the treatment of this condition, Bovinine in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient, is unsurpassed.

HYDROTHORAX.

Synonyms.—Dropsy of the pleura.

Definition.—The effusion of fluid into the pleural cavities (bilateral), the result of a general dropsy from renal or cardiac disease.

Pathological Anatomy. — More or less clear serous fluid in both pleural sacks, compressing the lungs. No signs of inflammation are present.

Symptoms. — Following dropsy of the abdomen occurs dyspnœa, with signs of deficient blood æration, both lungs being compressed.

Palpation.—Absent vocal fremitus over the site of the fluid.

Percussion.—Dullness over the site of the fluid.

AUSCULTATION.—Absent vesicular murmur over the site of the fluid.

DIAGNOSIS. — Easily determined by association of the symptoms with a general dropsy.

PROGNOSIS. — Controlled by the cause producing the general dropsy.

TREATMENT.—Drug treatment symptomatic. As a tonic and food, Bovinine is exactly indicated in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

PNEUMOTHORAX.

SYNONYMS.—Air in the pleural cavity; hydropneumothorax.

DEFINITION.—The accumulation of air in the pleural cavities, with the consequent development of inflammation of the membranes; characterized by sharp pain, followed by rapidly developing dyspnœa and cough.

CAUSES.—Generally the result of tubercular phthisis, causing perforation of the pleura. Perforation may take place from the pleura into the lung, in connection with empyema or abscess of the chest walls. Direct perforation from without, by laceration of fractured rib or severe contusion.

PATHOLOGICAL ANATOMY.—The gas in the pleural cavity consists of oxygen, carbon anhydride, and nitrogen in variable proportions. It may fill the pleural sac completely, compressing the lung, or is sometimes limited by adhesions. The gas tends to excite inflammation, the resulting effusion being either serous or purulent.

SYMPTOMS.—Symptoms of pneumo-thorax, the result of perforation, are sudden or sharp pain in the side, intense dyspnœa, attended with symptoms of collapse, coldness of the surface and cold sweats.

The above symptoms, in many instances, follow a severe or violent paroxysm of coughing. In severe cases there is never a moment's cessation of the acute pain and distressing dyspnœa, causing orthopnœa, from the onset until death.

INSPECTION.—Enlargement of the affected side, the intercostal spaces being widened and effaced, or even bulged

out, so that the surface of the chest is smooth. Respiratory movements of the affected side are diminished or absent.

PERCUSSION.—Immediately after the rupture the percussion note is hyper-resonant, or even tympanitic or amphoric in quality. If the amount of air in the pleural cavity becomes extreme, there is dullness on percussion, associated with a feeling of great resistance or density. When effusion of blood occurs, dullness is observed over the lower part of the chest, hyper-resonant or tympanitic percussion note over the upper portions of the chest, these sounds changing, as the patient changes his position.

AUSCULTATION.—The normal vesicular murmur may be diminished or absent. The typical amphoric respiratory sound is heard when the fistula is open, usually associated with a metallic echo.

Metallic tinkling, or the bell sound, is sometimes distinctly produced by breathing, coughing, or speaking, after the development of inflammation of the pleura.

The vocal resonance may be diminished or absent, or, rarely, it may be exaggerated, with a distinct metallic echo.

After the development of inflammation in the pleura, suddenly shaking the patient gives rise to a splashing sensation, the surcussion sound, if both air and fluid are present in the pleural cavity.

PROGNOSIS.—When occurring as the result of tuberculosis, the prognosis is extremely unfavorable; rarely, the fistulous opening being closed by inflammatory action; the case then becomes one of chronic pleurisy.

TREATMENT.—Drug treatment symptomatic. As a tonic and food, Bovinine is exactly indicated in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

DISEASES OF THE CIRCULATORY SYSTEM.

The methods employed in making a physical examination of the heart are: I. Inspection. II. Palpation. III. Percussion. IV. Ausculatation.

INSPECTION.—Indicates the exact point of the cardiac impulse, and whether there be any abnormal pulsations or any change in the form of prœcordium.

Normally, the impulse is visible only in the fifth interspace, midway between the left nipple and the left border of the sternum, its area covering about one square inch, most distinct in the thin, while often barely seen in the very fleshy; often displaced downward by full inspiration and elevated by complete expiration.

Disease may alter the position and area of the impulse.

The position of the impulse is moved to the right by left pleuritic effusions; downward by hypertrophy or emphysema; upward by percardial effusion.

The area of the impulse is changed and enlarged by pericardial adhesions, cardiac dilatation, or hypertrophy.

Palpation.—Confirms the observations of inspection, and also determines the force, frequency and regularity of the cardiac impulse.

The impulse is diminished by cardiac dilatation, fatty degeneration of the heart, emphysema, pericardial effusion, and adynamic disease.

The impulse is increased by cariac hypertrophy during the first stage of endicarditis and pericarditis, functional cariac disturbances and sthenic inflammations.

Percussion will indicate the boundaries of the superficial and deep cardiac space, the so-called præcordium. It is essential that the upper, lower and two lateral boundaries of the pericardial region be memorized, to-wit: Superior boundary, the upper edge of the third rib; the lower boundary is a horizontal line, passing through fifth intercostal space; the left lateral boundary is about or a little within a vertical line, passing through the nipple, the linea mammalis; and the right lateral boundary is an imaginary vertical line, situated one-half an inch to the right of the sternum. These boundaries vary somewhat in health, but are sufficiently accurate for all practical purposes.

The superficial cardiac space represents that portion of the heart uncovered with lung; it is triangular in form, its apex being the junction of the lower border of the left third rib with the sternum, its area not exceeding two inches in any direction.

The superficial space is increased by cardiac hypertrophy, dilatation or pericardial effusion.

Diminished at the end of full inspiration or by emphysema.

The deep cardiac space represents that portion of the heart covered by lung, and extends from the upper border of the third rib to the edge of the fifth interspace, and from half an inch to the right of the sternum to near the left nipple.

It is increased by hypertrophy or dilatation of the heart, left pleuritic effusion, and apparently increased by consolidation of the anterior border of the investing lung.

Auscultation indicates the character of the normal cardiac sounds and the point of greatest density at which they are heard, and should be thoroughly familiarized if abnormal sounds are to be fully appreciated.

The ear or stethoscope applied to the præcordium distinguishes two sounds, separated by a momentary silence,—the short pause, and the second sound, followed by an interval of silence—the long pause.

The first sound, corresponding to the contraction of the heart—the systole—is louder, longer and of lower pitch and a more booming quality than the second sound, and has its point of greatest intensity at the cardiac apex or a little to the left. It corresponds closely to the pulsations as felt in the carotid or radial arteries.

The second sound is shorter, weaker and higher in pitch than the first sound, and has a clicking or valvular quality, having its point of greatest intensity at the second right costal cartilage and a little above, and corresponds to the closure of the aortic and pulmonary valves. The sound made by the closure of the tricupsid valves is best isolated at the ensiform cartilage. The sound made by the closure of the pulmonary valves at the third left costal cartilage.

The extent of surface over which the cardiac sounds are heard, varies according to the size of the heart and the condition of the adjacent organs for transmitting sounds.

The cardiac sounds may be altered in intensity, quality, pitch, seat and rhythm, or they may be accompanied, preceded or followed by adventitious or new sounds, the so-called endocardial murmurs.

The intensity is increased by cardiac hypertrophy, irritability of the heart or consolidation of adjacent lung structure.

The intensity is diminished by cardiac dilatation or degeneration, during the course of adynamic fevers, emphysematous lung overlapping the heart, or pericardial effusion.

The quality and pitch of the first sound may be sharp or short and of higher pitch when the venticular walls are thin, the valves being normal; its pitch and quality are also raised during the course of low fevers. The second sound becomes duller and lower in pitch when the elasticity of the aorta is dimished or the aortic valves thickened. Either or both sounds have a more or less metallic quality in irritable heart and during gaseous distension of the stomach.

The seat of greatest intensity of the cardiac sound is changed by displacement of heart, pleuritic effusion, pericardial effusion, and abdominal tympanitics.

The rhythm is often interrupted by a sudden pause or silence, the heart missing a beat, or the sounds are irregular, confused and tumultuous, the result of organic changes in the cardiac muscles, valves, or orifices; or a reduplication of one or both sounds of the heart may occur.

The adventitious cardiac sounds or murmurs are of two kinds, those made external to the heart, as pericardial, exocardial or frictional murmurs, and those made within the cardiac cavity, endocardial murmurs.

Pericardial murmurs, or friction sounds, are made by the rubbing upon one another of the roughened surfaces of the pericardial membrane during the early stages of inflammation. The sounds have a rubbing, creaking, or grating character, and are differentiated from a pleural friction sound by their being limited to the præcordium, synchronous with every sound of the heart, and not influenced by respiration.

They are distinguished from an endocardial murmur by their superficial rubbing, creaking or grating character, and by not being transmitted beyond the limits of the heart, either along the course of the vessels, or to the left axilla, or back.

Endocardial murmurs are of two kinds, to-wit: organic and functional.

Functional endocardial or blood murmurs are the result of changes in the natural constituents of the blood.

Their character is soft, they are heard most distinctly at the base, to the left of the sternum, during the systole, and not transmitted beyond the limits of the heart, either to the left axilla or the back, and are associated with general anæmia.

Organic endocardial murmurs are produced by blood currents, pursuing either a normal or an abnormal direction.

In health, there are two direct blood currents upon each side of the heart, to-wit: The current from the left auricle to the left ventricle, the mitral direct current; the current from the left ventricle to the aorta, the aortic direct current; the current from the right auricle to the right ventricle, the tricuspid direct current, and the current from the right ventricle to the pulmonary artery, the pulmonic direct current.

When, from disease, the valves are not properly closed, the blood is allowed to flow back against the direct current, producing abnormal blood currents, to-wit: When the mitral valve is incompetent, the blood flows from the left ventricle back to the left auricle during the cardiac systole, producing the mitral regurgitant or indirect current; when the aortic valves are incompetent, the blood is permitted to flow from the aorta into the left ventricle during the cardiac systole, producing the aortic regurgitant or indirect current; when the tricuspid valves are incompetent, the blood flows from the right ventricle back into the right auricle during the systole, producing the tricuspid regurgitant or indirect current; when the pulmonary valves are incompetent, the blood flows from the pulmonary artery into the right ventricle, producing the pulmonic regurgitant or indirect current.

The mitral direct current occurs during the contraction of the left auricle, or just before the first sound of the heart and immediately after its second sound. The aortic direct current is produced by the contraction of the left ventricle, and occurs with the first sound of the heart. The tricuspid direct current occurs during the contraction of the right auricle, or just before the first or immediately after the second sound. The pulmonic direct current is produced by the contraction of the heart, occurring during its first sound.

The mitral direct, or presystolic murmur, occurs before the first sound of the heart and immediately after the second sound. It is caused by a narrowing of the mitral orifice, has a blubbering quality, well imitated by throwing the lips into vibration by the breath, of a low pitch, and has its seat of greatest intensity at the cardiac apex, and is not transmitted to the left axilla or to the base of the heart.

The mitral regurgitant, or systolic murmur, occurs with the first sound of the heart, resulting from the failure of the mitral valves to close the mitral orifice during the systole, in consequence of which the blood flows back, or regurgitates into the left auricle. It is usually of a blowing or churning character, and has its seat of greatest intensity at the cardiac apex, being well transmitted to the left axilla and inferior angle of the left scapula.

The aortic direct murmur occurs with the second sound of the heart. It is caused by a narrowing of the aortic orifice, has a rough or creaking character, is of high pitch, having its seat of greatest intensity in the second intercostal space, to the right of the sternum, and is well transmitted over the carotid artery.

The aortic regurgitant murmur occurs with the second sound of the heart, and is caused by the failure of the aortic valves to close the aortic orifices during the diastole, whereby the blood flows back or regurgitates into the left ventricle. It is usually of a blowing or churning character and of low pitch, having its seat of greatest intensity over the base of the heart, and is well transmitted downwards toward or below the cardiac apex. It is the only organic murmur produced in the left side of the heart which occurs with the second sound of the heart.

The tricuspid direct murmur occurs before the first sound of the heart and immediately after the second sound. It is caused by a narrowing of the tricuspid orifice, has a blubbering quality, and is low in pitch, having its seat of greatest intensity near the ensiform cartilage. This murmur is exceedingly rare.

The tricuspid regurgitant murmur occurs with the first sound of the heart; the result of the failure of the tricuspid valves to close the tricuspid orifice during the systole, thus allowing the blood to flow back or regurgitate into the right airicle. It is usually of a blowing or soft, churning character, having its seat of greatest intensity at the ensiform cartilage. This murmur is also very infrequent, and occurs mostly when the right ventricle is considerably dilated, without the existence of any valvular disease.

The pulmonic direct murmur occurs with the first sound of the heart. It is generally connected with congenital lesions. It occurs at the same instant that the aortic direct murmur occurs, and is distinguished from the latter by its

not being transmitted into the carotid artery, whereas the aortic direct murmur is always thus transmitted.

The pulmonic regurgitant murmur occurs, like the aortic regurgitant murmur, with the second sound of the heart. This murmur is exceedingly rare, and its presence is only positively differentiated from the aortic regurgitant murmur by the absence of aortic lesions and symptoms.

ACUTE PERICARDITIS.

Definition.—An acute fibrinous inflammation of the pericardium; characterized by slight fever, pain, præcordial distress and disturbed cardiac action and circulation.

If the inflammation be limited to the parietal or visceral layer, or to a part of either, it is termed partial or circumscribed pericarditis; if it involve the whole of both surfaces it is termed general or diffused pericarditis.

Causes.—May follow injuries of the chest walls, or be the result of taking cold, but generally secondary to either acute articular rheumatism, pneumonia, pleurisy, erysipelas, Bright's disease or pyæmia.

Pathological Anatomy.—The same as serous membranes in other situations.

Hyperæmia of the membrane, most marked on the visceral layer, followed by the exudation of lymph scattered in irregular patches, giving it a rough and shaggy appearance (dry pericarditis), followed by the effusion of a serofibrinous fluid, with flocculi floating on it, and at times mixed with blood. Rarely, the fluid is purulent.

The fluid and lymph undergo absorption with resulting adhesions identical with those described under pleurisy.

Symptoms.—Acute pericarditis may be well marked and still present none of the characteristic subjective symptoms. It usually begins with rigors, fever of the remittent type, frequently nausea and vomiting, prœcordial distress, acute shooting pains, increased by breathing and coughing, tenderness, dry, and sometimes violent palpitation. An attack of pericarditis secondary to an existing disease, presents no marked symptoms other than those mentioned to indicate its onset. Duration of this early stage, from a few hours to a day.

Effusion stage: The symptoms of this stage depend upon the amount and rapidity of the effusion; præcordial oppres-

sion, tendency to syncope, dyspnœa, sometimes amounting to orthopnœa, dysphagia, hiccough, nausea and vomiting, feeble, irregular pulse, sometimes either melancholia, delirium, or acute maniacal excitement.

Absorption is generally rapid, the heart remaining "irritable" for a long time after. If, instead of absorption, the fluid accumulates, and life is not destroyed, the pericardial sac becomes dilated, chronic pericarditis resulting.

INSPECTION.—Early stage, excited cardiac action is evidenced by the impulse.

Effusion stage, feeble, undulatory, or absent impulse, its position displaced upward, or rarely downward. Bulging of the præcordium and protruding abdomen.

PALPATION.—Early stage, excited or tumultuous impulse; pericardial friction, fremitus rare.

Effusion stage, feeble or absent impulse, and if present, its position is changed.

PERCUSSION.—Early stage normal.

Effusion stage, cardiac dullness, enlarged vertically and laterally, and if considerable fluid, of a triangular shape, with the base of the triangle on a line with the sixth rib, extending from the right of the sternum to the left of the left nipple, narrowing as it proceeds upward to the second rib, or above, which represents the apex of the triangle. The shape of the dullness is sometimes altered by changing the position of the patient.

AUSCULTATION.—Early stage, excited cardiac action, and usually friction sound (exocardial murmur) synchronous with cardiac sounds and uninfluenced by respiration, but often increased by pressure with the stethoscope.

Effusion stage, cardiac sounds feeble and deep-seated at the cardiac apex, becoming louder and distinct toward the cardiac base. The friction sound is sometimes heard at the cardiac base.

If absorption occur the above signs gradually give place to the normal, the friction sound returning, of a churning, or clicking, or grating character, gradually disappearing.

DIAGNOSIS.—Endocarditis is often confounded with pericarditis, the points of distinction between which will be pointed out when discussing that affection.

Cardiac hypertrophy or dilatation is sometimes confounded with pericardial effusion; the difference between which will be pointed out when discussing that affection.

Hydropericardium may be mistaken for pericardial effusion. (See that affection).

Prognosis.—Controlled by the severity of the inflammation and coexisting affections. If slight effusion, favorable. Death has rapidly occurred when a large quantity of fluid has been rapidly effused, the patient being really drowned in his own fluid. Adherent pericardium is a frequent sequela.

Treatment.—Drug treatment symptomatic. Complete rest; Bovinine as a diet in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient. In all heart conditions, Bovinine seems to produce a desirable sedative effect on the cardiac muscle.

CHRONIC PERICARDITIS.

Definition.—A chronic inflammation of the pericardium, with either distension of the sac by fluid or adhesions of the pericardium (adherent pericardium); characterized by impaired cardiac action and disturbances of the circulation.

Causes.—Almost always the result of an acute attack.

Pathological Anatomy.—If the effusion be absorbed, the pericardial surfaces are agglutinated by several layers of lymph, which increase the thickness of the membranes half an inch or more, and the outer surface of the pericardium becomes adherent to the chest walls. If the fluid be not absorbed, it may progressively accumulate, distending the sac in all directions, displacing the diaphragm and interfering with the functions of the surrounding viscers, or a low grade of inflammation supervenes, the fluid becoming purulent, the disease terminating fatally after a variable period.

As much as eight to ten pints of fluid have accumulated in the sac.

Symptoms. — Præcordial pain and distress, irregular, feeble cardiac action, dyspnæa, aggravated by movement and disturbed circulation.

An agglutinated pericardium seriously increases the danger from an attack of any pulmonary inflammation.

Inspection.—If the effusion be present, bulging of the præcordium and displacement of the impulse

If adhesions are formed between the præcordial surfaces as well as with the chest walls, inspection reveals depression of the præcordium, narrowing of the spaces, increased extent, but displaced impulse, uninfluenced by deep inspiration, and recession of the intercostal spaces (systolic dimpling) and epigastrium with every sustole of the heart, the result of the adhesion.

PALPATION.—If effusion, displaced feeble or absent impulse; if adhesion, displaced and tumultuous impulse, occasionally a pericardial fremitus is distinguished.

PERCUSSION.—If effusion, the dullness has more or less the character described for acute pericarditis.

If adhesions, the cardiac dullness is but slightly modified.

AUSCULTATION.—If effusion, cardiac sounds feeble and deep-seated at the apex, lower and more distant at the cardiac base.

If adhesions, cardiac sounds are heard with equal distinctness in their several positions, associated with a rough fricition sound (exocardial murmur).

TREATMENT.—Rest; drug treatment symptomatic. Bovinine as a tonic and food, in doses from five drops to a wineglassful, from every hour to hour, according to the age and condition of the patient.

HYDRO-PERICARDIUM.

SYNONYM.—Pericardial dropsy.

DEFINITION.—The accumulation of water in the pericardial sac, minus inflammation; characterized by præcordial distress, disturbed cardiac action, dysnœa and dysphagia.

CAUSES.—Usually a part of a general dropsy; Bright's disease; sudden pneumothorax; pressure of an aneurism or other mediastinal tumor; disease or thrombosis of the cardial veins.

PATHOLOGICAL ANATOMY. — The fluid may range in quantity from an ounce to one or two pints, and is of a clear, yellowish or straw-colored serum, at times turbid or bloody, and of an alkaline reaction.

If the amount of fluid be large, the sac is dilated, its walls thinned by the pressure, and has a sodden appearance.

SYMPTOMS.—Dropsy of the pericardium is so generally associated with hydrothorax that the symptoms are but an aggravation of those attending upon that condition, to-wit: Disturbed cardiac action, dyspnœa, dysphagia, dry cough, and feeble circulation.

The physical signs are exactly those of the stage of effusion of pericarditis, minus a friction sound.

DIAGNOSIS. —Pericarditis with effusion and hydro-pericardium present nearly the same signs and symptoms, a differentiation being possible only by a history of the case and the symptoms of the attack.

PROGNOSIS.—Controlled entirely by the cause.

TREATMENT. —Medical treatment symptomatic. Bovinine as a tonic and food, in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, is unsurpassed.

ACUTE ENDOCARDITIS.

SYNONYMS.—Valvulitis.

DEFINITION.—An acute fibrinous inflammation of the serous membrane lining the cavity of the heart and forming its valves; characterized by cough, dyspœa, nausea and vomiting, disturbed cardiac action, resulting in changes in the valves or orifices of the heart.

Acute endocarditis occurs in two distinct forms—plastic or simple exudative endocarditis; ulcerous or diphtheritic endocarditis.

CAUSES.—Usually secondary to acute articular rheumatism, pleuritis, pneumonia, pericarditis or Bright's disease. In the ulcerative or diphtheritic variety, a depressed condition of the vital forces, probably the result of the diphtheritic poison, seems to be the determing cause.

PATHOLOGICAL ANATOMY.—Inflammation of the endocardium is usually limited to the left side of the heart after birth, during fœtal life the reverse being the case. The inflammation is limited or especially marked at the valvular portions of the endocardium, owing probably to the presence of fibrous tissue beneath the membrane in these situations, and to the strain which falls upon the valves during the performance of their functions.

Hyperæmia from congestion of the vessels beneath the membrane, with considerable swelling of the valves, the

result of an exudation of lymph and serum beneath and on the free surface of the membrane covering the valves and chordæ tendineæ, resulting in the roughening of the surfaces and the agglutination of the mitral valves to each other, and of the aorta segments to the walls of the aorta, or the proliferation of the endocardial connective tissue, forming the nuclei of the so-called warty excrescences or vegetations, their size being increased by the deposit of fibrin from the blood within the cavaties of the heart.

These vegetations may be detached by friction, giving rise to emboli which may be washed by the blood current on the left side of the brain, into the kidneys and spleen.

In the ulcerative variety a process of softening takes place in the fibrinous deposits, leading to ulcerations and perforations.

Symptoms.—This affection is usually masked by the course of another disease until disturbances of the circulation attract attention to the heart.

The onset is often by increase of temperature, præcordial distress, short cough, slight dyspnœa, more or less persistent vomiting, increased cardiac action, often rapid and tumultuous, with throbbing carotids and noises in the ear. As the inflammation progresses, the cardiac action and pulse decline in rapidity, with more or less congestion of the lungs and venous stasis.

Auscultation.—Shows a change in the character of the sounds or the developments of murmurs at the various orifices, the character and points of distinction between which will be pointed out when discussing valvular diseases of the heart.

Duration.—Between one and three weeks.

Diagnosis.—Pericarditis is distinguished from endocarditis by the character of physical signs. In pericarditis the murmur or friction sound is heard with either sound, is near to the ear and influenced by pressure of the stethoscope, besides being associated with more or less alteration in the size and shape of the cardiac dullness, and is not transmitted, while in endocarditis the murmur takes the place of, or is associated with, the cardiac sounds, and is transmitted, with the absence of change or increased dullness on percussion.

Prognosis.—Acute endocarditis is not very dangerous to life, hence a favorable prognosis may be given: regarding

the ultimate results of valvular lesions, however, the prognosis is grave.

TREATMENT.—Drug treatment as indicated. Bovinine as a tonic and food in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient produces the best results.

ACUTE MYOCARDITIS.

DEFINITION.—An inflammation of the muscular tissue of the heart, by extension from an inflamed pericardium or endocardium, or secondary to pyæmia; characterized by pain, feeble circulation, symptoms of blood poisoning and collapse.

CAUSES.—The result of endocarditis or pericarditis; pyæmia; typhoid fever; emboli of the coronary arteries.

PATHOLOGICAL ANATOMY.—Discoloration and softening of the cardiac substance and the infiltration of a sero-sanguineous fluid, fibrinous exudation and pus, leading to the formation of abscesses in the muscular structure of the heart.

The disease leads to the formation of either a cardiac aneurism or to rupture of the walls of the heart. If recovery occur, cicatrices or depressed scars may mark the site of a former abscess.

SYMPTOMS.—The clinical evidences of inflammation of the cardiac muscle are very obscure. If, during the course of one of the maladies mentioned, there are developed pain, irregular and feeble cardiac action, pyrexia of a low type, with symptoms of blood poisoning, and a tendency to collapse, or the symptoms of the so-called typhoid state, myocarditis may be suspected.

DIAGNOSIS.—The existence of myocarditis can scarcely ever be anything but presumption, the signs being all negative rather than positive. If during the course of rheumatism, pyæmia, puerperal fever, typhoid fever, pericarditis or endocarditis, symptoms of cardiac failure appear suddenly, associated with signs of blood poisoning and collapse, inflammation of the cardiac muscle may be suspected.

PROGNOSIS.—The course of acute myocarditis is very rapid death being the usual termination, in from three to five days. Chronic myocarditis pursues a very latent course.

TREATMEMT.—Medical treatment symptomatic; rest; Bovinine as an ideal tonic and food in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

CARDIAC HYPERTROPHY.

DEFINITION.—An overgrowth or increase in the muscular tissue which forms the walls of the heart; characterized by forcible impulse; over-fullness of the arteries, diminished blood in the veins and accelerated circulation.

CAUSES.—Obstruction of the outflow of blood, to wit: aortic stenosis; emphysema; Bright's disease; functional over-action; excessive use of tobacco, tea, coffee, or excessive muscular action.

VARIETIES.—I. Simple hypertrophy, or a simple increase in the thickness of the cardiac walls; II. Eccentric hypertrophy, increase in the cardiac walls and dilatation of the cavities, to wit: Dilated hypertrophy; III. Concentric hypertrophy, increase in the cardiac walls and decrease of the cavities, a very rare form.

PATHOLOGICAL ANATOMY.—Hypertrophy of the heart is usually limited to the left side, the ventricles more commonly than the auricles, the latter dilating.

The shape of the heart is altered by hypertrophy; if the right ventricle, the heart is widened transversely and the apex blunted; if the left ventricle, the heart is elongated and, as a rule, the cavity is dilated; if both ventricles are hypertrophied, the heart has a globular shape. From increase in weight the heart may sink lower during the recumbent position, thereby lessening the area of cardiac dullness, but during the sitting or upright posture it sinks lower in the chest and to the left, causing more or less prominence of the abdomen.

The increase in the size of the organ is true increase or hypertrophy of the muscular tissue, and not a hyperplasia. The tissue is firmer and the color brighter and fresher than when the size of the organ is normal.

SYMPTOMS.—Depend upon the amount of hypertrophy. The most common are increased and forcible cardiac action, the arteries becoming fuller, the veins less full and the circulation accelerated, pulsating carotids and aorta, headache, often vertigo, frequent epistaxis, congestion of th

face and eyes, tinnitus aurium, dyspnœa on exertion, dry cough, restless nights with more or less jerking of the limbs, occasional præcordial pains shooting towards the axilla, full, firm, bounding pulse, and pulsations in the in the superficial arteries.

A sphygmographic tracing shows the line of ascent verticle and abrupt, but the apex is rounded, and the line of descent is oblique, unless there is more or less insufficiency of the valves.

INSPECTION.—Often fullness or prominence of the præcordium, with distinct impulse.

PALPATION.—The impulse is felt one or two intercostal spaces lower down and to the left, and is stronger and more or less diffused—the heaving impulse.

PERCUSSION.—The area of cardiac dullness in increased vertically and transversely upon the left side of the sternum, unless the right ventricle is also hypertrophied, when the cardiac dullness is increased to the right of the sternum.

AUSCULTATION.—If simple hypertrophy without any coexisting changes in the valves or orifices, the first sound has a loud and somewhat metallic quality, the second sound being strong and accentuated.

SEQUELÆ.—Cerebral hemmorrhage, miliary cerebral aneurisms; dilatation of the heart; fatty changes in the cardiac tissue.

DIAGNOSIS.—Hypertrophy of the heart can scarcely be mistaken for any other disease if a careful study of the physical signs be made.

PROGNOSIS.—When the result of valvular disease, the hypertrophy is said be compensatory. If the result of Bright's diseases, emphysema of the lung, or if occurring late in life, or association with atheromatous degeneration of the vessels, the prognosis is unfavorable; when the result of functional over-action in the strong and robust a further enlargement can often be prevent by active and persistent treatment.

TREATMENT.—Drug treatment symptomatic. In this condition very marked improvement has resulted in the use of Bovinine as a tonic and food in doses ranging from five drops to a wineglassful every hour to four hours, according to the age and condition of the patient.

DILATATION OF THE HEART.

DEFINITION.—An increase in the size of one or more of the cavities of the heart, without any increase or thickening of the cardiac walls; in fact, the walls are frequently thinner; characterized by feebleness of the circulation, terminating in venous stasis, œdema and exhaustion.

CAUSES. — Over-exertion in those of feeble resisting powers, as youths or soldiers, as first pointed out by Prof. Da Costa; insufficiency of the valves; emphysema; chronic bronchitis; gout; Bright's disease.

VARIETIES.—I. Simple dilatation, the cavities being enlarged, the walls normal. II. Active dilatation, corresponding to eccentric hypertrophy; the cavities being enlarged and the walls increased in thickness, the so-called "dilated hypertrophy." III. Passive dilatation, the cavities being enlarged and the walls thinned or stretched.

PATHOLOGICAL ANATOMY.—The right side of the heart is far more frequently involved than the left side. The shape of the organ is altered, according to the part affected. The weight of the organ is, as a rule, increased, as hypertrophy almost always accompanies or precedes dilatation.

The muscular tissue is generally pale, mottled and softened, and under the microscope presents evidences of degeneration. The orifices also participate, and especially the auriculo-ventricular, resulting in the valves becoming incompetent to close the orifices, and this latter effect is added to by the removal of the basis of the papillary mucles to a great distance from the orifices, in consequence of the extension of the wall.

When the auricles dilate, the large venous trunks opening into them unprotected by valves commonly participate in the dilatation and may become greatly enlarged.

The passive congestion of the organs that follows the feeble circulation produces changes in their structure.

SYMPTOMS.—Those associated with enfeebled circulation, to wit: feeble pulse, veins distended, arteries emptied; headache, aggravated by the upright position, attacks of syncope, cough, with any of the following phenomena of venous congestion: of the lungs, dyspnœa, liver, jaundice; stomach, dyspepsia; intestines, constipation; kidneys, scanty, often albuminous, urine; brain, dullness of the mind and vertigo, often relieved by a copious epistaxis;

and, finally, dropsy, beginning in the lower extremities, the patient dying from exhaustion.

Great relief often temporarily follows any of the above symptoms under treatment; sooner or later, however, the venous stasis produces the final symptoms noted.

Inspection.—Veins of the surface distended and enlarged; indistinct cardiac impulse, often diffused and wavy; if associated with tricuspid insufficiency, there is pulsation of the jugular.

Palpation.—Feeble and irregular fluttering but heaving impulse.

Percussion.—Cardiac dullness extended transversely, and especially increased on the right side.

Auscultation.—If no vavular lesion accompany the dilatation the cardiac sounds are weaker than normal, the first sounds having a sharper quality than normal; if accompanied by valvular lesions, cardiac murmurs are present.

Diagnosis.—Hypertrophy of the heart shows increased cardiac dullness, and is a disease of powerful cardiac action, while dilatation is an affection of feeble action associated with dropsy.

Pericardial effusion has many points of resemblance to cardiac dilatation, but it begins suddenly, associated with some acute malady; and while the heart sounds are indistinct or feeble at the apex, they both have their normal qualities at the cardiac base, while dilatation of the heart has a chronic history, results in general venous stasis, the cardiac sounds being of the same intensity over the entire præcordia.

Prognosis.—Unfavorable, death resulting from gradual exhaustion, or suddenly by cardiac paralysis if there be undue excitement.

Treatment.—Drug treatment symptomatic. In this condition, the final, of which is invariably death, is warded off indefinitely by the constant administration of Bovinine in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

FATTY DEGENERATION OF THE HEART.

DEFINITION.—A change in the muscular fibres of the heart, in which the transverse striæ are replaced by granules and globules of fat; characterized by feeble cardiac action, venous stasis and dyspnœa.

CAUSES.—Impaired nutrition in the elderly; prolonged anæmia; chronic gout; alcoholism; phosphorous poisoning; cancer; tuberculosis and scrofula; disease of the coronary arteries.

PATHOLOGICAL ANATOMY.—The distinction must be made between a deposit of fatty tissue upon or around the heart, and the degeneration of its muscular tissue.

The fatty metamorphosis may affect the whole organ, or the entire ventricles, or be limited to portions of them. If the degeneration be marked, the color is yellowish, the tissues soft and easily torn, and to the touch have a greasy feeling, oil being yielded on pressure.

The microscopic changes are characteristic. The striæ of the muscle are early rendered indistinct by fat and oil globules, gradually becoming more and more obscured, and finally disappearing altogether, the fibres being replaced by fat granules.

SYMPTOMS.—Those of weak heart, anæmia of organs and venous stasis, to-wit: Feeble, irregular, but slow cardiac action, compressible pulse, præcordial distress, often aggravated by attacks of angina pectoris; dyspnœa, aggravated on exertion, with anæmia of the various organs, from the feeble propulsive power; if of brain, vertigo, swooning, or pseudo-epileptic attacks, especially marked on suddenly rising from a recumbent position; if of lungs, dry, hacking cough; if of gastro-intestinal tract, dyspepsia and constipation; if of kidneys, scanty urine, at times albuminous; and finally, dropsy, beginning in the lower extremities.

A formidable symptom, causing much inconvenience as well as alarm to the patient, is what he will term his constant "sighing," the Cheyne-Stokes breathing—a pause in the breathing, a complete suspension of the respiratory acts for a period of time (during which breathing might occur several times in the normal manner), then the resumption of respiration, very feebly and slowly, and a gradual and progressive increase in the number and depth

of respirations until the maximum is reached, and then again a gradual progressive diminution, in the same order, in the number and depth of the respirations, until another pause occurs, "the oscillating respiration."

Concomitant symptoms are atheromatous change in the vessels, and the æcus senilis.

PALPATION.—Weak cardiac impulse.

PERCUSSION.—Not markedly changed unless preceded by enlargement of the heart.

AUSCULTATION.—First sound feeble, toneless, almost inaudible; the second sound being normal, unless changes in the valves are present.

DIAGNOSIS.—If aged persons, or those exposed to the causes, have feeble heart, associated with atheroma of the vessels and the arcus senilis, the diagnosis of fatty heart is almost positive. If dropsy occur, however, it is difficult to distinguish from dilatation of the heart.

PROGNOSIS.—Incurable, the affection pursuing a more or less chronic course. Life may be prolonged at times by treatment, but death finally results from exhaustion, or suddenly, from cardiac paralysis or ruptnre of the heart.

TREATMENT.—Drug treatment symptomatic. Rest, and for a while Bovinine and milk diet has often produced most gratifying results, life being prolonged for years, if given in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

VALVULAR DISEASES OF THE HEART.

DEFINITION.—Alterations in the cardiac valves or orifices, rendering the former incapable of properly closing the latter, or causing the latter to interrupt the blood current in its normal movement.

The lesions are of two kinds, to-wit: obstructive and regurgitant.

A regurgitant lesion, termed also insufficiency, is such change in the valves as to permit a portion of the blood to flow backward instead of onward, the true direction of the blood current.

An obstructive lesion, termed also stenosis, is a narrowing of the orifice. thereby obstructing the passage of the blood.

VARIETIES.—1. Mitral regurgitation. 2. Aortic regurgitation. 3. Tricuspid regurgitation. 4. Pulmonic regurgitation. 5. Mitral obstruction. 6. Aortic obstruction. 7. Tricuspid obstruction. 8. Pulmonic obstruction.

CAUSES.—In the young, usually the result of endocarditis, and generally affecting the mitral orifice or valves; in the elderly, chronic endocarditis or atheromatous degeneration, most commonly affecting the aortic orifice or valves.

Prof. Da Costa has clearly established the production of aortic disease in early life by overwork and strain of the heart; syphilis; dilatation of the heart; atrophy or contraction of the valves, and congenital malformations.

MITRAL REGURGITATION.

PATHOLOGICAL ANATOMY.—The most common conditions observed are more or less contraction and narrowing of the tongues of the valves, with irregular thickening and rigidity; atheroma or calcification of the segments; laceration of one or more segments; adhesion of one or more segments to the inner surface of the ventricle; rupture of the chordæ tendinæ, and also contraction and hardening of the musculi papillares.

As a result of the regurgitation of the blood into the left auricle, there is delated hypertrophy.

SYMPTOMS.—Insufficiency of the mitral valves soon leads to cardiac hypertrophy, to compensate for the diminished amount of blood sent onward by the ventricular systole. When the "compensation ruptures" there occurs præcordial distress, cough, dyspnœa, feeble, soft, rapid, irregular pulse; finally pulmonary congestion, œdematous limbs, the abdominal cavity filled, liver congested, urine scanty and albuminous, the patient dying "drowned in his own fluid."

INSPECTION.—Cardiac impulse lower than normal, the heart being enlarged.

PALPATION.—Early, forcible and diffuse impulse; later, feeble diffused impulse.

PERCUSSION.—Transverse and vertical cardiac dullness increased.

AUSCULTATION.—Systolic blowing or churning murmur, audible in the mitral area, propagated to the apex, left axilla and under the angle of the scapula, either occurring

with or taking the place of the first sound of the heart; the second sound markedly accentuated.

Prognosis.—So long as the compensating hypertrophy can be maintained the prognosis is not unfavorable; when dilatation supervenes, however, the patient soon perishes, either from congestion of the lungs or dropsy and exhaustion.

AORTIC REGURGITATION.

Pathological Anatomy.—The valves or segments adhere to the walls of the aorta, or a segment is lacerated or may be perforated, or, more commonly, the segments are shrunken, deformed, and rigid, permitting the regurgitation of the blood. These deficiencies in the valves are usually associated with more or less narrowing of the orifices.

The cardiac muscle rapidly hypertrophies, its cavity enlarging—dilated hypertrophy.

Symptoms.—Those of marked hypertrophy, to wit: forcible cardiac action, headache, tinnitus, congestion of the face and eyes, with pulsating vessels, even small ones pulsating that before were not visible to the eye; pulsations of the retinal vessels can be recognized with the ophthalmoscope; the receding pulse, which is particularly characteristic—forcible impulse but rapidly declining, called "water-hammer" pulse; also, the "Corrigan pulse."

When "compensation ruptures," dyspnœa, cough, hepatic enlargement, congestion of the kidneys, with scanty, albuminous urine, ascites and dropsy. Is mitral insufficiency is now superadded, general venous stasis and death rapidly occur.

Inspection.—Forcible cardiac muscle.

Palpation.—Strong, full cardia impulse.

Percussion.—Cardiac dullness increased transversely and vertically.

Auscultation.—First sound, forcible; second sound, replaced or associated with a churning, rushing or blowing murmur of low pitch, distinct at the second right costal cartilage, but most distinct at the junction of the sternum and the fourth left costal cartilage, transmitted downward toward and below the apex

PROGNOSIS. The one valvular disease most likely to occasion sudden death; still, so long as the compensating hypertrophy remains intact, compatible with quite an active life.

TRICUSPID REGURGITATION.

PATHOLOGICAL ANATOMY.—This form of valvular insufficiency is either associated with right-sided cardiac dilitation from pulmonary obstruction, or is the result of mitral disease.

The tricuspid orifice is dilated in the majority of cases; occasionally the segments of the vales are contracted or adherent to the ventricle.

SYMPTOMS.—Venous stasis with its various consequences, and especially pulsation of the jugular synchronous with the cardiac movement, and finally general venous pulsation, especially of the liver, pulmonary congestion, engorgement of the kidneys and dropsy. These symptoms are superadded to those of the affections with which tricuspid insufficiency is always associated.

INSPECTIONS.—Diffused, wavy, cardiac impulse; jugular pulsation, synchronous with the cardiac movement, uninfluenced by respiration, also more or less prominent hepatic pulsation.

PALPATION.—The cardiac impulse extended, but feeble.

PERCUSSION.—Dullness on percussion, extending to the right and below the sternum.

AUSCULTATION.—The first sound is accompanied by a blowing murmur, most intense at the junction of the fourth and fifth ribs with the sternum, distinct over the xiphoid appendix, becoming feeble or lost in the left axillary region; often associated, however, with a mitral sistolic murmur.

PULMONIC REGURGITATION.

PATHOLOGICAL ANATOMY.—Insufficiency of the pulmonary valves is of rare occurrence, but when present the changes correspond more or less with those described for aortic regurgitation.

SYMPTOMS.—Those of dilatation of the right sides of the heart and consequent pulmonary congestion, to-wit: dyspnœa, deficient aeration of the blood, and cyanosis, dis-

tension of the superficial vessels, palpitation of the heart, præcordial distress, sudden suffocative attacks and dropsy.

PERCUSSION.—The cardiac dullness extending to the right of the sternum.

AUSCULTATION.—A loud blowing murmur associated with the second sound of the heart, most distinct at the junction of the third left costal cartilage and the sternum.

PROGNOSIS.—Death results, sooner or latter, from dropsy and exhaustion.

MITRAL OBSTRUCTION.

PATHOLOGICAL ANATOMY.—Mitral stenosis is caused by deposits around the orifice, the result of endocarditis, or else the segments of the valves are "glued together by their margins," leaving but a funnel-shaped opening, the so-called "button-hole" mitral valve. Vegetations on the valves lead to more or less obstruction of the blood current.

SYMPTOMS.—Hypertrophy of the left auricle results from obstruction of the mitral orifice, the symptoms of the stenosis being unobservable until the "compensation ruptures," when occur irregular, small and feeble pulse, dyspnœa, cough, bronchorrhœa, the result of bronchial congestion; dilatation of the right side of the heart, soon leading to general venous stasis, dropsy and death.

INSPECTION.—Normal until auricular hypertrophy, when an undulatory impulse is observed over the left auricle.

PALPATION.—When cardiac dilatation occurs, a diffussed, feeble and irregular cardiac impulse is felt near the xiphoid appendix.

AUSCULTATION.—First sound normal in character but irregular in rhythm. The second sound normal. A blowing sometimes rasping, sound is heard, immediately after the second sound of the heart ceases, and immediately before the first sound begins—a presystolic murmur, heard most distinctly in the mitral area, lessening in intensity toward the cardiac base. The cardiac sounds are all more or less enfeebled if cardiac dilatation occur.

PROGNOSIS.—The prognosis is controlled by the hypertrophy. Under favorable circumstances mitral stenosis is compatible with a long and rather active life.

AORTIC OBSTRUCTION.

Pathological Anatomy.—Stenosis of the aortic orifice depends upon the projection of the valves inward, and their becoming rigid and thickened, or atheromatous or calcareous, so that they cannot be pressed back by the blood, but remain constantly in the current of the circulation. Occasionally, the valves are covered with fibrinous masses, the opening into the artery being thus more or less completely closed, or the segments may be adherent by their lateral surfaces, leaving a central opening, which may be so contracted as to only permit the passage of the smallest article.

Symptoms.—Hypertrophy of the left ventricle rapidly supervenes upon aortic stenosis. The pulse is small, slow and hard. The supply of blood to the brain is insufficient in many cases, and hence attacks of vertigo, syncope or slight epileptiform seizures occur; finally, dilatation of the left ventricle and incompetence of the mitral valve result, with subsequent pulmonary congestion, dyspnœa and general venous stasis, the pulse soft and feeble.

Palpation.—Lowered cardiac impulse, strong in the early stage. feeble when dilatation occurs.

Percussion.—The cardiac dullness is increased vertically, the transverse dullness being slightly affected.

Auscultation.—The first sound replaced or associated with a harsh, rasping sound, whistling at times, having its greatest intensity at the junction of the second right costal cartilage with the sternum, transmitted along the vessels; the murmur may sometimes be heard a short distance from the patient.

Usually, aortic stenosis is associated with more or less aortic regurgitation, whence a double murmur occurs, having its greatest intensity at the base of the heart, the so-called see-saw murmur.

Prognosis.—So long as compensation is maintained, the symptoms of aortic stenosis are nil. When the compensation is ruptured, the usual symptoms of dilatation, venous stasis and dropsy, soon follow.

TRICUSPID OBSTRUCTION.

This condition is one of the rarest affections of the heart, and if it ever does occur with or following an attack of endocarditis, the anatomical changes are similar to those of mitral obstruction. This condition soon leads to auricular dilatation; venous stasis rapidly supervenes, associated with venous pulsations, similar to those described when speaking of tricuspid regurgitation.

PULMONIC OBSTRUCTION.

Pathological Anatomy.—Always a congenital malady, the changes consisting in "constriction of the pulmonary artery, unclosed foramen ovale, unclosed ductus Botalli, stricture at the ductus Botalli, with hypertrophy of the right cavity and frequent association with tuberculosis of the lungs."

Hypertrophy of the right ventricle may ensue, the walls becoming almost as thick as those upon the left side.

Those in whom these congenital defects in the cardiac structure occur are otherwise weak, develop slowly, have flabby tissues, soft bones and seem poorly nourished.

Symptoms.—The hypertrophy which often ensues may keep life apparently comfortable for some time, but sooner or later "compensation ruptures," when cough, dyspnœa, cyanosis and death occur.

Prognosis.—The duration of these congenital affections is short, usually from a few days to a few months; although several well authenticated cases record a much longer duration.

DIAGNOSIS OF VALVULAR DISEASES

In making a differential diagnosis between the various forms of valvular diseases of the heart, strict attention must be paid to the points of greatest intensity at which the several murmurs are heard.

A murmur occurring with or taking the place of the first sound of the heart—the ventricle systole—heard most distinctly at the apex, transmitted to the left axilla, and to the inferior angle of the scapula, signifies mitral regurgitation—a mitral systolic murmur.

A murmur occurring with or taking the place of the first sound of the heart, with its point of greatest intensity at the xiphoid appendix, signifies regurgitation at the tricuspid orifice—tricuspid systolic murmur.

A murmur heard with the first sound of the heart, high-pitched, rasping or grating in character, with its point of intensity greatest at the second right costal cartilage, signifies obstruction at the aortic orifice—an aortic systolic murmur.

A murmur heard with the first sound of the heart, soft in character, with its point of intensity most distinct at the junction of the third left costal cartilage with the sternum signifies obstruction at the pulmonic orifice—a pulmonic systolic murmur.

A murmur occurring immediately after the second sound of the heart, and immediately before the beginning of the first sound of the heart, signifies obstruction at the mitral orifice—a presystolic mitral murmur.

A murmur heard with or taking the place of the second sound of the heart, most distinct at the second costol cartilage, to the right of the sternum, and well transmitted toward the apex or below, signifies insufficiency or regurgitation at the aortic orifice—an aortic regurgitant or diastolic murmur.

Although eight distinct valvular murmurs have been described as occurring in the heart, those on the right side are of rare occurrence, and hence of little clinical importance.

If a murmur be heard with the first sound of the heart, it is almost certainly aortic obstructive or mitral regurgitant; and if heard with the second sound, it is probably aortic regurgitant. A presystolic mitral murmur is also of comparatively rare occurrence, the force with which the blood passes from the left auricle into the left ventricle being, under ordinary circumstances, insufficient to excite sonorous vibrations.

Functional or anæmic murmurs may be confounded with the various forms of valvular disease of the heart. The chief points of distinction between them are that an anæmic murmur, which is always heard at the base of the heart, is always systolic in time, not transmitted away from the heart, and is soft in character, low in pitch, and of variable intensity, now being heard, now entirely absent.

TREATMENT. — Valvular diseases of the heart are all greatly benefitted, and a general improvement is invariably observed where Bovinine is given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

PALPITATION OF THE HEART.

SYNONYM.—Irritable heart.

DEFINITION. — A functional disturbance of the heart; characterized by increasing frequency of its movements and more or less irregularity of the rhythm, with a strong tendency toward hypertrophy.

CAUSES.—Over-exertion, "the heart strain" of Da Costa; dyspepsia; uterine diseases; excesses in tea, coffee, tobacco, alcohol or venery; moral and emotional causes. grief, anxiety and fear.

SYMPTOMS.—Usually, palpitation of the heart has a sudden onset after some one of the causes mentioned, præcordial oppression or pain, rapid, tumultuous beating, the impulse being visible through the patient's clothing, dyspnœa, anxiety, and a sense of choking or fullness in the throat, the recumbent position impossible, vertigo, faintness, flashes of light, the pulse full and strong or feeble, the face flushed or pale, the patient having a feeling of anxiety, with a sense of impending danger and a fear of sudden death. These attacks are paroxysmal, lasting from a few moments to several hours, or a day, the patient often voiding a large quantity of limpid urine after the paroxysm has subsided, when there is a strong tendency to sleep.

DIAGNOSIS.—Irritability of the heart is differentiated from the various forms of cardiac disease by the absence of all the physical signs mentioned as occurring in those conditions.

PROGNOSIS.—If early and properly treated, favorable.

TREATMENT.—As a tonic and food, Bovinine is highly lauded by many of the profession in the treatment of this condition, in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

ANGINA PECTORIS.

SYNONYM.—Neuralgia of the heart.

DEFINITION.—Paroxysms in which there occur sharp cardiac pains, extending usually into the left shoulder and down the left arm, accompained by a feeling of constriction of the thorax and a strong sense of impending breath.

CAUSES.—Depending upon the variety, whether nervous origin or organic. Often hereditary; associated with chronic cardiac changes, as dieeases of the coronary arteries or calcification of the valves; the excessive use of tobacco; according to Trousseau, it is a form of masked epilepsy, and may alternate with the true epileptic attacks; often associated with hysteria.

PATHOLOGICAL ANATOMY.—Nervous form, "the pathological changes which stand in a causative relation to the attacks are those of the cardiac plexus of the phrenic and of the pneumo-gastric nerves. Pressure of enlarged lymphatics, inflammation of parts of the cardiac plexus, with changes in the coronary artery, seem to be most constant."

Organic foam, a disease of the arteries, ossification and occasionally obliteration of the cardiac arteries, producing cardiac ischæmia.

SYMPTOMS.—A paroxysmal affection, the attacks occurring irregularly; in the interval entire absence of symptoms.

"The patient suddenly sits up in his bed; with a cry of horror indicates the sense of pain at the præcordium. This pain is of great intensity, but is of cold and sickening character; the chest is fixed, the breathing quickened, and the hand placed over the epigastrium finds that the heart's action is slight and enfeebled. The face wears a look of horror, pale and slightly leadened; a cold sweat breaks out upon the forehead; worse than the pain is the feeling of fearful sickness and depression. The poor patient gasps, 'I shall die. I shall die," and sometimes his short but concentrated sufferings in a few moments end in death.

The unpleasant sensations of these patients during an attack, and the nervous disorder associated with it, slowly bring about a mental change. They are depressed and gloomy, sometimes sucidal, often developing epilepsy.

DIAGNOSIS.—The points to be remembered are that the attacks are always paroxysmal. the patient having a sense

of coldness, and frequently a cold sweat, the heart's action not increased, the chest fixed and the breathing slow.

Prognosis.—Unfavorable, the patient, sooner or latter, either succumbing during a paroxysm or from exhaustion, the result of the cardiac changes.

Treatment.—Medical treatment as indicated. Bovinine brings about a general improvement in the patient's condition, thereby lessening the frequency and severity of the attacks, and many cases are reported as absolutely cured.

DISEASES OF THE NERVOUS SYSTEM.

CONGESTION OF THE BRAIN.

Synonyms.—Cerebral hyperæmia; cerebral congestion.

Definition.—An abnormal fullness of the vessels (capillaries) of the brain; active when arterial fullness; passive, when venous fullness; characterized by headache, vertigo, disorders of the special senses, and if the hyperæmia be decided, convulsions.

Causes.—Active. Increased cardiac action, the result of hypertrophy of the left ventricle; general plethora; excesses in eating and drinking; alcoholism; sunstroke; prolonged mental labor; diminished amount of arterial blood in other parts, the result of the compression of the abdominal aorta; ligation of a large artery, and the suppression of an habitual bleeding hemorrhoid are examples.

Passive. Dilatation of the right heart; pressure upon the veins returning the cerebral blood.

Pathological Anatomy.—The post-mortem appearances are, overloading of the venous sinuses and of the meningeal vessels, including the finer branches; the pia mater appears vascular and opaque; the gray matter of the convolutions unduly red; the convolutions may be compressed and the ventricles contracted, with the displacement of a corresponding amount of cerebro-spinal fluid.

Long-continued or repeated congestions lead to enlargement and tortuosity of all the vessels, a moist and a slimy condition (œdema) of the cerebral substance, and an increase in the sub-arachnoid fluid.

Symptoms.—"Rush of blood to the head" may be gradual or sudden in its onset, the symptoms aggravated by the recumbent position. Headache, with paroxysmal neuralgic darts, disorders of vision and hearing, buzzing

in the ears and sparks before the eyes, contracted pupils, vertigo, blunted intellect, inability to concentrate the mind, irritable temper and curious hallucinations. The face is red, the eyes congested, and the carotids pulsating. The sleep is disturbed by dreams and jerkings of the limbs. If the attack be sudden (apoplectiform), sudden unconsciousness, with muscular relaxation occur.

Cerebral hyperæmia in children often presents alarming symptoms, such as great restlessness, insomnia, night terrors, gnashing of teeth during sleep, vomiting, contraction of pupils, followed by general convulsions. Any or all of these symptoms may continue more or less marked, from an hour or two to a day, the child enjoying its usual health after a sound sleep, save some fatigue.

Prognosis.—Mild cases terminate favorably in a few hours to a day or two, but show a strong tendency to recur. Severe cases (apoplectiform) may terminate in health, but usually fortell cerebral hemorrhage.

The passive form is controlled by the lesions giving rise to it.

Treatment.—Drug treatment as indicated. As a tonic and food through an attack of cerebral hyperæmia, Bovinine in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, meets with the best of results.

CEREBRAL ANÆMIA.

Definition.—An abnormal decrease in the quantity of blood in the cerebral vessel; general, when the diminished supply includes all the vessels; partial, when the diminished supply is limited in area; characterized by pallor, headache, vertigo, some loss of power, and rarely, convulsions.

Causes.—Partial cerebral anæmia results from obstruction of a vessel, from embolism or thrombosis. General cerebral anæmia results from hemorrhages, wasting diseases, during convalescence from severe attacks of fever, sudden shocks, feeble cardiac action and general anæmia.

Pathological Anatomy.—The cerebral vessels contain less blood than normal; the brain is pale and milky in color, and on transverse section there are no bloody points; the ventricles and perivascular lymph spaces are well filled with fluid.

In partial anæmia the local conditions differ somewhat from the above.

Symptoms.—General anæmia; headache, relieved by the recumbent position, vertigo, aggravated by exertion; general pallor and anæmia, with attacks of fainting; when the general cerebral anæmia is sudden and decided, convulsions occur.

Partial anæmia; sudden loss of power, of a limited muscular area, gradually returning to the normal condition.

Prognosis.—Favorable in all cases, save those the result of severe and repeated hemorrhages.

Treatment. — Drug treatment symptomatic. In this condition, Bovinine has brought about in every case where it has been employed, at least, great improvement, and in several instances, absolute cures. In every instance the cases were extreme and it was given in doses from a teaspoonful to a wineglassful, from every hour to every three hours, according to the age and condition of the patient.

CEREBRAL THROMBOSIS AND EMBOLISM.

Synonyms.—Partial cerebral anæmia; occlusion of cerebral vessels; cerebral apoplexy(?).

Definition.—The occlusion of a cerebral vessel, from the formation of a thrombus, or the presence of an embolus, thus causing anæmia of some portion of the brain; characterized by the gradual, when the result of thrombosis, and the sudden, when due to embolism—development of headache, vertigo, disorders of intelligence, with more or less complete insensibility and paralysis.

Causes.—Trombosis, or the formation of a clot in the vessel—and ante-mortem coagulation—is almost always the result of chronic endarteritis, as seen in the aged, together with a slowing and weakening of the blood current. Chronic alcoholism and syphilis are the usual causes of cases occurring in young adults.

Emboli, in the great majority of cases, results from an endocarditis—cardiac emboli; small particles of the exudation are carried into the circulation and are deposited in the brain. Emboli may also be derived from aortic aneurism, or syphiloma of the great vessels.

PATHOLOGICAL ANATOMY.—The cerebral arteries may be obstructed by emboli or thrombi; the cerebral veins and sinuses by thrombi only. The changes in the cerebral tissue are those of anæmia of the part or parts supplied by the occluded vessels. The subsequent changes depend upon the anatomy of the vessels. If the obstructed artery has anastomoses, the collateral circulation is soon established and the brain tissue assumes its normal condition. If, on the other hand, the occluded vessel be one of (Cohnheim's terminal arteries)—arteries without anastomoses—the blood in the whole extent of the occuled vessel coagulates, thus preventing the backward flow of blood from the surrounding capillaries and so obstructing collateral circulation, whence the anæmic tissue dies or undergoes necrobiosis, followed by yellowish-white softening; or, if the vessel be on the seat of the occlusion remains pervious, blood flows back through the capillaries from the nearest artery or vein; the parts that a short time before were bloodless, now become deeply engorged. The succeeding changes in the vessels permitting diapedesis of the red blood globules, the tissues which are undergoing disintegration are colored by the red globules, causing the appearances entitled "red softening," which after some weeks becomes "yellow softening," finally changing to "white softening," when there is a milky, or rather creamy fluid, mixed with masses or particles of broken-down nerve elements.

The vessel most commonly occluded is the left middle cerebral artery, which sends branches to the second and third frontal convolutions, the anterior and superior portions of the three temporal convolutions, the island of Reil, the parietal convolutions, part of the external and all of the internal capsule, the lenticular nucleus, and most of the corpus striatum—the motor centers.

SYMPTOMS.—Two distinct modes of onset; gradual, when the result of thrombosis; sudden or apoplectic, when due to embolism.

Cerebral thrombosis, most common in the aged. Persistent headache and vertigo, at one time severe and at another mild. Next, alterations of the patient's character, irritable, morose and despondent, with periods of absent-mindedness, disorders of vision and impairment of memory, speech becoming hesitating and mumbling. Impaired

locomotion, the result of vertigo and of muscular weakness and trembling, followed sooner or later by hemiplegia, which may be preceded by sudden insensibility or occur gradually, the symptoms slowly proceeding to senile dementia and death from exhaustion; or rarely, the symptoms are not so grave and partial or complete recovery occurs after the hemiplegia from establishment of the "collateral circulation."

Cerebran embolism. The symptoms are sudden, but either mild or grave in character.

Mild variety: Sudden and severe vertigo, confusion of mind, muscular twitchings, usually one-sided, and vomiting, followed by hemiplegia, most frequently of the right side, the intellect clear, but hesitating. After some weeks or months, the paralysis usually disappears and recovery is complete.

Grave or apoplectic variety: Sudden headache, vertigo, flushing or pallor of the face, or the patient may utter a sharp cry, fall to the ground with sudden unconsciousness and complete muscular resolution, followed by death, or a gradual return of consciousness with hemiplegia, which is generally right-sided, remaining for several weeks or months, or is persistent, the mind remaining normal or enfeebled and the emotional nature highly excitable and the reason and judgment clouded, continuing thus for years, or gradually developing into dementia, exhaustion and death.

Duration.—Thrombosis essentially an affection of the elderly, has a chronic course. Months or years may be occupied with the various symptoms until the phenomena of senile dementia develop.

Embolism is of sudden onset, and may be followed by rapid recovery.

Diagnosis.—Thrombosis is associated with changes in the vessels, the arcus senilis and other evidences of senile degeneration.

Embolism may be mistaken for cerebral apoplexy, and while a positive differentiation cannot always be made, the chief points will be considered when discussing that affection.

Prognosis.—Thrombosis is a permanent and progressive condition in the majority of instances. Recovery is a rare termination.

Embolism may be followed by a perfect recovery. Usually, however, some evidences of the plugging remain permanently. Death may be the result within a day or two, from the plugging of a large vessel, the patient never emerging from the coma. In other cases, the patient arouses from the coma, the hemiplegia with aphasia persisting, and the case pursues the usual course of localized cerebral softening.

TREATMENT. — Thrombosis, under Bovinine, has, in a number of cases, been greatly improved and four cases of recovery reported. In embolism, in every instance where it was used, a recovery resulted. The effect was solely a tonic, restoring the system to its normal standard, thereby enabling nature to absorb and remove the obstruction.

CEREBRAL HEMORRHAGE.

SYNONYM.—Apoplexy.

DIAGNOSIS.—The sudden rupture of a cerebral vessel and escape of blood into the cerebral tissue, causing pressure and more or less destruction of the brain substance; characterized by sudden unconsciousness, irregular, noisy respiration and complete muscular relaxation.

CAUSES.—Rare under forty years of age. The principal cause is disease of the vessels—a periarteritis, resulting in miliary aneurisms, and especially if associated with cardiac hypertrophy; hereditary tendency; Bright's disease; syphilis; gout. More frequent in the spring and autumn.

PATHOLOGICAL ANATOMY.—The most common locations of cerebral hemorrhage are the corpus striatum and thalamus opticus; less common the anterior and middle lobes and the cerebellum; next in frequency the pons and medulia oblongata; and rarely on the convexity of the brain, termed meningeal hemorrhage.

When the hemorrhage is large, the blood may break into the ventricles and pass by the iter from the third to the fourth ventricle.

A recent clot is dark in color, and in consistency a soft, grumous mass, composed of coagulated blood and brain substance in varying proportions, at whose centres is the opening into ruptured vessel. The clot excites inflammation around it, resulting in its being encysted, by the development of new connective tissue from the neuralgia,

and then gradually absorbed, leaving a cicatrix or the brain tissue around the clots softens and degenerates—localized softening.

Symptoms.—Two modes of onset, to wit: with and without prodromes or "warnings."

Pendromes. Headache, vertigo, transient deafness or blindness, sensations of numbness of the extremities, with local palsies together with the constant dread of an attack.

The attack begins with vomiting, followed by either partial or complete insensibility; respiration slow, irregular and noisy; during the inspiration the paralyzed cheek is drawn in, and puffed out in expiration; pulse slow and full; pupils uninfluenced by light, the face flushed, the eyes congested and the carotids throbbing; the temperature declines below the normal a degree or two.

The muscular system is profoundly relaxed, and the reflex movements are abolished. The head and eyes deviate, in many cases, toward the effected side in the brain or from the paralyzed side.

If the unconsciousness continues longer than twenty-four hours, death is the usual termination, preceded by a pale face, irregular and rapid pulse and respiration, and rise of temperature.

Reaction obtains in from a half to three hours, consciousness returning, reflex excitability reviving, associated with headache, confusion of mind, and more or less paralysis of motion and sensibility of one side of the body, termed hemiplegia.

The electro-excitability of the paralyzed parts is preserved.

Restoration may be delayed by imflammatory symptoms, the temperature rising to 101°-104° F., with tonic contractions (early rigidity) of the paralyzed muscles and severe neuralgic pains.

Sequelæ.—Paralysis of the muscles of the face, tongue, body and extremities of one side, opposite to the location of the hemorrhage, termed unilateral paralysis or right or left hemiplegia.

Paralysis of both sides of the body, due to simultaneous hemorrhage on both sides, termed bilateral hemiplegia.

Paralysis of one side of the face and the extremities of the opposite side, due to hemorrhage into the pons varolii, termed alternating or crossed paralysis.

Occasionally tonic contractions occur in muscles long paralyzed, termed late rigidity, and is evidence of a secondary degeneration of the nerve fibres.

Choreic movements in paralyzed muscles are termed posthemi-plegic chorea, due, according to Charcot, to changes in the motor centres.

The mental powers are always more or less permanently impaired, the patient irritable and emotional, and the same holds good concerning the memory.

Diagnosis.—Insensibility from drink differs from apoplexy in the following points, to wit: Insensibility is not so complete, no drawing in and puffing of one cheek with respiration, the pulse frequent instead of slow, the pupils influenced by light; upon raising both legs no difference is apparent on allowing them to drop; the eyes and head are not turned to one side, and lastly, the condition is ameliorated on the inhalation of ammonia. I have satisfactorily used Dr. von Wedekind's test for temulence, to wit: "By simply pressing on the supraorbital notches with a steadily increasing force you may, with certainty of success, bring an unconscious alcoholic to his senses, and thus differentiate between alcoholic and other comas."

Opium poisoning differs from apoplexy by the gradual approach of the coma, and that the patient can be momentarily aroused, and also by the absence of the heavy stestor of apoplexy.

Urœmia causes a coma that closely resembles apoplexy. A history of Bright's desease at once clears up the case; again, uræmic coma is always proceded by convulsions, and has a continued depressed temperature.

Cerebral embolism cannot always be differentiated from apoplexy. We may suspect cerebral plugging, if the patient be young; if he be laboring under acute, subacute or chronic valvular trouble; if, within brief periods, several incomplete attacks have occurred before a complete comatose condition obtains; or, if hemiplegia results with passing or slight consciousness; or, if the phenomena are sooner or later followed by cerebral softening, as embolism and thrombosis are the most common causes of softening.

Syncope or a fainting fit is of sudden onset, but being due to a failure of the circulation, the pulse is feeble, the face pale, the respiration quiet, and the duration of unconsciousness short, all the very opposite of an apoplectic attack.

PROGNOSIS.—If the patient survive the immediate effects of a cerebral hemorrhage, he is always in danger of a new attack, since the causes of the original attack still remain. Another attack or two is the usual course, a fatal termination ultimately occurring.

The hemiplegia is uncertain; a partial recovery may occur within a few months, or it may continue for years.

TREATMENT.—Where the case is prolonged, Bovinine is exactly indicated as a food. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

ACUTE MENINGITIS

SYNONYMS.—Cerebral fever; arachnitis.

DEFINITION.—An acute inflammation of the cerebral pia mater and arachnoid membranes; characterized by headache, chill, fever, delirium, and followed by symptoms of general collapse.

CAUSES.—Cerebral overwork, prolonged wakefulness; acute alcoholism; exposure of the sun; disease of the internal ear; erysipelas; secondary to disease of serous membranes, and the continued and eruptive fevers. Most frequently in early adult life and in young children, and in males rather than females.

PATHOLOGICAL ANATOMY.—The inflammatory changes may be limited either to the convexity or to the base of the brain.

Intense hyperæmia of both membranes, followed by a purulent and fibrinous exudation. The ventricles may be filled with fluid, compressing and flattening the convolutions.

SYMPTOMS.—Vary according to the stages:

Prodomes; headache, vertigo, cerebral vomiting, more or less feverishness, continuing from a few hours to one or two days, then occurs the

Stage of Invasion; onset sudden with chill, high fever, 103° to 104°, pulse 100 to 120, face flushed, with congested eyes, headache, ringing in the ears, photophodia, vertigo, the nausea aggravated, and projectile vomiting.

Stage of excitement; general sensibility of the body increased, sensitiveness to light, and acuteness of hearing,

delirium furious, often resembling insanity, continual jerking of the limbs, oscillation of the eyeballs, twitching of the muscles of the face, followed by powerful contractions of the flexor muscles, even to the extent of opisthotonus, and in children convulsions. Duration, from one day to a week or two.

Stage of Depression or Collapse: the patient gradually becomes more quiet; the delirium subsides, as well as the muscular agitation; somnolence occurs, passing into coma, at times temporary consciousness, coma soon following again; pulse irregular and slow, fever less; various palsies, to wit: strabismus, ptosis, pupils uninflenced by light, mouth drawn to one side, urine and fæces involuntary discharged. Death following, either by convulsions or by deeping coma.

Diagnosis.—Cerebro-spinal fever closely resembles acute meningitis, the points of distinction between which are the first named occurring epidemically, associated with marked spinal symptoms and an eruption.

The cerebral symptoms of rheumatism are differentiated from idiopathic meningitis by the association of the joint trouble.

Cerebral symptoms of typhoid and typhus fever have a close resemblance to idiopathic meningitis, and are only determined by a study of the clinical history.

In acute uræmia the face is turgid, with puffiness of the eyelids; in meningitis the face is pale and no œdema; uræmia has decided albuminuria; it is slight or absent in meningitis, meningitis has chills followed by fever; uræmia has not.

In deliriums tremens the delirium is a busy one, the patient imagining persons and animals around him, and is wild in his gestures and utterances; the temperature is normal or subnormal, the skin wet and clammy. In meningitis the delirium is mild but incoherent, the surface is hot and dry, and there is severe vomiting and headache.

Prognosis.—Not very favorable. If recognized early and treated, a fair number of recoveries occur, but it usually leaves the patient subject to attacks of epilepsy or with a persistent headache.

Treatment.—As a food and tonic through an attack and the stage of convalescence, Bovinine is an ideal preparation.

PACHYMENINGITIS.

Synonyms.—Meningitis; hæmatoma of the dura mater.

Definition.—Inflammation ot the dura mater; when the external layer is primarily involved, it is termed pachymeningitis externa; when the internal layer is primarily involved, it is termed pachymeningitis interna.

Causes.—Pachymeningitis externa is a surgical malady, resulting from fractures, penetrating wounds, and other injuries of the skull.

Pachymeningitis interna is due to blows upon the head without injury to the skull. A predisposition may be created by chronic alcoholism, scurvy, Bright's disease and syphilis. Chronic internal otitis and suppurative inflammation of the orbit may cause it, also inflammation in the venous sinuses, the result of a thrombus undergoing suppurative changes.

Pathological Anatomy. — Pachymeningitis interna. Hyperæmia of the membrane, followed by an exudation which develops into membraneous new formation, containing a great number of vessels of considerable size, but having very thin walls. Hemorrhages from these new vessels are of frequent occurrence, which increase the size and thickness of the neo-membrane.

The usual position of the neo-membrane or new formation is on the upper surface of the hemispheres, extending downward toward the occipital lobe. The changes in the adjacent portion of the brain are dependent upon the size and thickness of the neo membrane. Bartholow observed a case in which the "cyst" was half an inch in thickness at its thickest part, and it depressed the hemisphere correspondingly, the convolutions being flattened, the sulci almost obliterated, and the ventricle lessened one-half in size.

In pachymeningitis syphilitica, the pathological lesion is in the form of gummatous tumors or masses which may degenerate and become either cheesy masses or be converted into a purulent-looking fluid.

In old age the dura matter becomes thick, cartilaginous, and of a dull white color. The sheathes of the arteries are also thickened.

Symptoms.—Very obscure; principally those of cerebral pressure. Cases of persistent headache, vertigo, photophobia, anorexia, insomnia, gradual impairment of intellect

and locomotion, followed by delirium, and convulsions and coma, or by apopletic attacks and paralysis; in the aged, or those in whom some one of the causes of the affection are present, an inflammation of the dura mater may be suspected. Epileptic attacks (dural epilepsy) sometimes occur.

Circumscribed painful œdema behind the ear and less fullness of the jugular of the corresponding side, the plegmasia alba dolens en miniature of Griesinger, are indicative of thrombosis in the transverse sinus, as was first shown by Virchow.

Diagnosis.—Always problematical, as the symptoms are masked and so obscure that a positive diagnosis is impossible. In very many instances the condition was not discovered until an autopsy.

Prognosis —Most favorable for either forms, although the course of malady is usually slow. Surgical treatment in traumatic cases offers some hope.

Treatment.—Bovinine is an ideal food and tonic through an attack and the stage of convalescence.

ACUTE LEPTOMENINGITIS.

Synonyms.—Acute meningitis; cerebral fever; arachnitis.

Definition.—An acute exudative inflammation of the cerebral pia mater and arachnoid membranes (pia arachnoid, or arachnopia), usually limited to the convexity of the cerebrum; characterized by fever, vomiting, headache, delirium, and followed by symptoms of general collapse.

Causes.—During the course of the acute infectious diseases; erysipelas; associated with or a sequela of influenza and typhoid fever. Cerebral overwork; prolonged wakefulness; acute alcoholism; exposure to the sun; syphilis; blows on the head; disease of the internal ear; secondary to diseases of serous membranes. Most frequent in early adult life and in young children, and in males rather than females.

"The micro-organisms found in meningitis are the pneumococus, streptococcus pyogenes, intracellular diplococcus, the pneumonbacillus, and a bacillus resembling that of typhoid fever" (Dana).

Pathological Anatomy.—The inflammatory changes may be limited either to the convexity or to the base of the brain, but more frequently both portions are involved.

Intense hyperæmia of both membranes, followed by a purulent and fibrinous exudation. The ventricles may be filled with fluid, compressing and flattening the convolutions.

In twenty-five post-mortem examinations at the Philadelphia Hospital a meningo-encephalitis was present in fourteen.

Symptoms.—Keeping in mind the anatomy of the cerebral membranes and the extent of surface that may be involved in an inflammation, it will be seen how varied may be the symptoms of lepomeningitis.

Prodromes: Headache, vertigo, cerebral vomiting, more or less feverishness, continuing from a few hours to one or two days, when occurs the

Stage of invasion: Onset with a chill, high fever, 103°-104°; a pulse 100-120; face flushed with congested eyes; severe headache, most intense and continous; ringing in the ears, photophobia, vertigo, the nausea aggravated; projectile vomiting, with delirium; general hyperæsthesia to the touch.

Stage of Excitation: General sensibility of the body, increased with sensitiveness to light and acuteness of hearing; delirium furious, often resembling mania; continual jerking of the limbs, oscillations of the eyeballs (nystagmus), twitching of the muscles of the face followed by powertul contractions of the flexor muscles, even to the extent opisthotonos, and in childeren convulsions; coated tongue, constipation and retracted abdomen. Duration, from one day to a week or two.

The finger drawn across the surface leaves a red line, the tache cerebrals.

Stage of Depression or Collapse: the patient gradually becomes more quiet, the delirium subsiding, as well as the muscular agitation; somnolence developes passing into coma, at times temporary consciousness, coma soon following again; pulse irregular and slow, fever less; various palsies, such as strabismus, ptosis, pupils uninfluenced by light, mouth drawn to one side, and urine and fæces involuntarily discharged. Death following either by convulsions or by deeping coma with cyanosis.

Diagnosis.—The characteristic symptoms indicating the existence of acute leptomeningitis are headache, vomiting, fever and delirium, all developing rather rapidly. The

headache is most persistent, and the vomiting not due to gastric trouble. The absence of any one of the four characteristic symptoms named above does not prove the absence of leptomeningitis, nor does the combination of delirium and fever alone determine the presence of meningeal disease.

Cerebro-spinal fever closely resembles acute leptomeningitis, the points of distinction between which are the first named occurring epidemically, associated with marked spinal symptoms and an eruption.

Meningitis and abscess of the brain are apt to be mistaken for each other, the differential diagnosis being pointed out in the later disease.

The cerebral symptoms of rheumatism are differentiated from idiopathic meningitis by the association of the joint trouble.

Cerebral symptoms of typhoid and typhus fever have a close resemblance to idiopathic meningitis, and are only determined by a study of the clinical history.

In acute uræmia the face is turgid, œdematous, with puffiness of the eyelids; in leptomeningitis the face is pale and no œdema; uræmia has a decided albuminura; it is slight or absent in leptomeningitis; leptomeningitis has chills followed by fever; uræmia has decided irregular temperature record, rapidly rising to 104°F.-106°F. and dropping to 99°F., as to rapidly rise again, and usually associated with convulsions.

In delirium tremens the delirium is a busy one, the patient imagining persons and animals around him, and is wild in his gestures and utterances; the temperature is normal or subnormal, the skin wet and clammy. In leptomeningitis the delirium is mild but incoherent, the surface is hot and dry, and there is severe vomiting and headache.

Prognosis.—Not very favorable. If recognized early and treated, a fair number of recoveries occur, but it usually leaves the patient subject to attacks of epilepsy, or with a persistent headache, and more or less mental impairment. Blindness and chronic internal hydrocephalus are rare results.

Treatment.—In several cases marked improvement was obtained, and in all cases treated benefit was observed by

the use of Bovinine in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

TUBERCULAR MENINGITIS.

Synonyms.—Basilar meningitis; acute hydrocephalus.

Definition.—An inflammation of the leptomeninges (soft membranes), particularly the basal pia mater, attended with or due to the deposit of gray miliary tubercule; characterized by gradual decline of the bodily and mental powers.

Causes.—Usually a secondary affection, a sequelæ to tubercular disease of some other organ. Most frequently occurs in children between two and six years of age, although numerous cases are reported occurring between twenty and thirty years; scrofulous (?) diathesis; inherited diathesis. The "gelatinous children of albuminous parents," as the phrase goes, possess a special susceptibility to tubercular meningitis.

Pathological Anatomy.—The deposition of tubercule usually occurs at the base of the brain.

Depositions of grayish white granules, of a translucent, somewhat gelatinous appearance—miliary tubercule, are distributed along the vessels of the pia mater, resulting in inflammation and the exudation of lymph, with a consequent thickening and opacity of the membranes.

The cerebral tissue is not usually involved, although on section the lines indicative of blood-vessels are very much increased in number. The ventricles are distended by a clear, or milky, or even bloody serum.

Tubercular deposits occur in the lungs, intestines, and at times, in other organs.

The presence of the tubercules alone may give rise to no symptoms until the exudative products of the resultant inflammation develop.

Symptoms.—The advent is either gradual and insidious, or with convulsions in which cases the after progress is rapid.

Prodromes: The child grows irritable, with loss of appetite, with loss of flesh, swollen abdomen, constipation, alternating with diarrhœa, irregular attacks of feverishness, with attacks of grinding the teeth during sleep, or

sleeplessness. Headache occurs, as shown by the child, even when at play, suddenly stopping and resting its head on its hands or on the floor. Duration of this stage is from one week to a month or two.

Stage of excitation: The onset is rather sudden, with obstinate vomiting, severe headache, convulsions; fever, 102° to 103° in the evening, falling to 99° in the morning; pulse soft and compressible, with irregular rhythm. On drawing the finger nail lightly over the surface, a red line results, "the cerebral stain" of Trousseau. The symptoms grow progressively worse with exaltation (hyperesthesia) of the special and general senses, the least pinch, or even touch, causing exquisite pain; spasmodic movements of the muscles, with contraction and rigidity, at times opisthotonos. Duration of this stage is about two weeks to a month.

Stage of depression, the result of the pressure of the exudation; the pulse is slow and compressible, with irregular rhythm; temperature depressed; tendency to somnolence, alternating with quiet delirium, mental stupor, continual movement of the fingers, as in picking up objects; convulsions from time to time, stradismus, oscillation of the eyeballs (nystagmus), followed by intervals of wakefulness, when the headache is excruciating, causing the peculiar unearthly shrill cry or shriek, "the hydrocephalic cry," associated with contraction of the muscles of the face, as if suffering were experienced; finally, collapse occurring, with the "Cheyne-Stokes" respiration, the coma deepening, followed by death, convulsions often ending the scene. Duration, from a day or two to two weeks.

Diagnosis.—Acute leptomeningitis and tubercular meningitis have closely analogous symptoms during the stage of excitation, but the history and clinical course of the two maladies determine the diagnosis.

Prognosis. — Unfavorable. Usual duration, three or four weeks after fully developed prodromes. If ushered in by convulsions, the duration is shorter.

Treatment.—In several cases marked improvement was obtained and in all cases treated, benefit was observed by the use of Bovinine in from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient

ACUTE HYDROCEPHALUS.

SYNONYMS.—Acquired hydrocephalus; serous apoplexy.

DEFINITION.—Strictly speaking, hydrocephalus signifies water in the brain; but it is here restricted to the presence of a serous fluid in the arachnoid spaces, in the pia mater, in the ventricles, and in the brain substance (œdema); characterized by the more or less sudden development of cerebral excitation, followed by depression and usually death.

CAUSES.—Most common between the ages of one and five, although it may occur at any age. "The predominance of the nervous system in the bodily conformation" is a strong predisposing cause. Among the exciting causes are unfavorable hygienic conditions, dentition, eruptive fevers, blows on the head, mechanical causes preventing the return of the blood from the vena Galeni and the right sinus, compression of the jugular vein, diseases of the right heart, and Bright's disease.

PATHOLOGICAL ANATOMY.—The effusion may be limited to the ventricles, although there is usually considerable distension of the subarachnoid spaces and œdema of the pia mater and neighboring portions of the brain, whence results more or less softening, especially around the ventricles. The choroid plexus is hyperæmic and may be the seat of minute extravasations.

SYMPTOMS.—There are three varieties of acute hydrocephalus with characteristic symptoms, to wit: comatose, convulsive and the ordinary.

Comatose variety, known as "serous apoplexy," begins abruptly with the phenomena of apoplexy, the result of the sudden effusion. The pressure is usually so great on the medulla oblongata that it ceases to functionate, death resulting in a few hours, rarely lasting several days.

Convulsive variety, the result of Bright's disease or a general dropsy, is ushered in with headache, nausea and vomiting followed in a day or two with convulsions, passing into coma, which usually terminates fatally, although rarely a remission may precede death for a day or two.

Ordinary variety, the most common in children, begins with feverishness, headache, vertigo, photophobia, restlessness, nocturnal delirium, insomnia, twitching and spasmodic contractions of the muscles and great hyperæsthesia

of the skin. Such symptoms continue for several days, when convulsions occur, followed by death, or a continuance of the symptoms, followed by rigidity, stupor and death.

PROGNOSIS.—Unfavorable.

TREATMENT.—Bovinine is an ideal food and tonic in this condition, given in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

CONGENITAL HYDROCEPHALUS.

SYNONYM.—Chronic hydrocephalus (?).

DEFINITION.—An excessive accumulation of the cerebro-spinal fluid—a cerebral dropsy—in the ventricles-internal hydrocephalus, or in the meshes of the pia mater-external hydrocephalus, or in both, mixed hydrocephalus; characterized by enlargement of the head and more or less pronounced nervous phenomena.

A disease of infants or very young children.

CAUSES.—Imperfect or arrested development of the brain or its membranes. Occurs in the offspring of tubercular, scrofulous or syphilitic parents. Inflammatory changes in the ventricles and ependyma.

PATHOLOGICAL ANATOMY.—Enlargement of the head is the chief external pathological condition, although there is no constant ratio between the size of the head, and the amount of fluid, the quantity varying from an ounce to a pint or more. The liquid is transparent, of a straw color, containing a small amount of albumin and chloride of sodium.

If the quantity of fluid be small, the ventricles are simply distended; if the amount be large, the optic thalami and corpus striatum are depressed and flattened, the roof of the ventricles thinned and the framen of Monro is greatly enlarged. The enlargement of the head may occur before birth and impede or prevent natural delivery, or the head may be normal at birth and increase after. As enlargement progresses, the bones are so thin as to be translucent, the fontanelles and sutures are widened, the lateral portions of the cranium project, the forehead bulges out over the eyes, and the orbital plates are depressed, forcing the eyes outward and downward, producing a variety of

exophthalmus; the head has an irregular, triangular shape, the base of the triangular being the top of the head. The scalp, being stretched by the pressure within, becomes tense and thin and but scantily covered with hair; the veins which ramify in it are unusually prominent and large, and the entire head is elastic on pressure, from the amount of liquid beneath.

Hilton, in Rest and Pain, says: "In almost every case of internal hydrocephalus which I have examined after death, I found that this cerebro-spinal opening (between the fourth ventricle and the spinal canal) was so completely closed that no cerebro-spinal fluid could escape from the interior of the brain; and, as the fluid was being constantly secreted, it necessarily accumulated there, occlusion formed to my mind, the essential pathological element of internal hydrocephalus."

Symptoms.—The increased size of the head, with the emaciated condition of the child, who seemingly eats well, is what first attracts the attention. The head appears too heavy, the eyes have a prominent, but downward direction, the face is devoid of expression, old and wrinkled, the voice feeble; the mental development is not in comparison with the age. When the period for standing or walking arrives, the power is found wanting, The further history is but a continuation and exaggeration of this, until convulsions occur, which sooner or later terminate fatally. The duration of congenital hydrocephalus is usually slow, but progressively worse. The majority terminate within the first year; cases are recorded of ten and fifteen years' duration.

Diagnosis.—In rachitis, the volume of the head is increased due in part, at least, to a deposit of calcareous matter on the exterior of the cranial bones. Rachitis may be mistaken for hydrocephalus in cases in which the amount of liquid is small. The differential diagnosis is based on the shape of the head, round in rachitis, square or triangular or with prominence in hydrocephalus; with the persistent downward direction of the eyes and the elasticity of the head on pressure.

Prognosis.—Unfavorable. Arrest of progress and even cures are reported. Spontaneous cures are reported, following the accidental discharge of the fluid. But such reports are exceptional.

TREATMENT.—Very great improvement has been observed in all cases treated by Bovinine in doses from five drops to a wineglassful, from every hour to four hours, as indicated.

CEREBRAL ABSCESS.

SYNONYM.—Acute encephalitis; suppurative encephalitis.

DEFINITION.—An acute suppurative inflammation of the brain structure, either localized or diffused, primary or secondary; characterized by impairment of intellect, sensation and emotion.

CAUSES.—Primary cerebral abscess is exceedingly rare. Pyæmia; glanders; embolus from ulcerated endocarditis. Secondary cerebral abscesses result from injuries to the cerebral tissues, to wit: apoplexy, embolism thrombosis, and injuries to the cranial bones.

PATHOLOGICAL ANATOMY.—Abscess of the brain effects the left side more frequently than the right. They are usually encysted or inclosed in a limiting membrane. Abscess of the brain may be single or multiple, varying in size from an almond to an egg.

It occupies a limiting and well-defined region of the cerebral tissue, to wit: either corpora striata, optic thalami, gray matter of the cortex, the cerebellum, or the white matter of the hemispheres.

"The initial stage at the site of the abscess is hyperæmia. Minute extravasions take place (capillary hemorrhage), giving to the imflamed area a dark reddish color, whence the term red softening. Migration of white corpuscles, diapedesis of some red corpuscles and exudation of serum holding albumin and fibre in solution, occur simultaneously. The brain tissue, being soft and easily broken up, is rapidly disassociated and its elements disintegrated, and in a short time a soft, pultaceous, red mass results, which more and more assumes a purulent character, becoming first reddish-yellow, then yellow or greenish-yellow, ultimately almost white. The injury caused by an abscess is not limited to the portion of the brain imflamed, but the neighboring territory is in the condition of collateral hyperæmia and œdema." (Bartholow).

SYMPTOMS.—A concise description of the symptoms of abscess of the brain is very difficult, on account of the

wide variations dependent on its location, and also the difficulty of isolating it from the affections to which it is secondary.

The onset varies according to the cause, although all cases are associated with headache, irritative fever, persistent and spreading paralysis, and convulsions.

If following apoplexy, thrombosis, or emboli, there occurs fever and delirium, the paralysis remaining and spreading with spasmodic contractions of the affected muscles.

Occasionally cases run a chronic course, the onset rather insidious; dull, persistent headache, changed disposition, peevish irritable, unreliable, with decline of moral sensibility; easily fatigued by mental work; inability to stand exertion; memory impaired; vertigo; dyspepsia, soon followed by slight palsies which progressively increase, becoming general, with involuntary discharges, death following from exhaustion.

Diagnosis.—A positive diagnosis is only possible by a close study of the clinical history, as the symptoms at times indicate meningitis, cerebral congestion, epilepsy or cerebral tumor.

Prognosis.—The usual termination is death. The course depends upon the character and extent of the injury, varying from a few days to several months.

Treatment.—As a tonic and a food through an attack and as rebuilder during the stage of convalescence, Bovinine stands alone, in doses from five drops to a wineglassful from every hour to four hours, as indicated.

INTRA-CRANIAL TUMORS.

Synonym.—Cerebral tumors.

Definition.—Tumor of the brain is either a growth in the cerebral tissue, on the meninges, or in the vessels; characterized by symptoms of pressure upon the brain structure.

Causes.—Injuries to the head; syphilis; changes in the vessels; tubercle and cancer; hereditary.

Pathological Anatomy.—The size of tumors vary, and may become as large as an orange before they will give rise to symptoms.

Tumors of the brain are of various kinds, to wit: vascular tumors-aneurisms; parasitic tumors-cysticercus; diathetic tumors-tubercle or syphilis; accidental tumors-fibroplastic.

Whatever the character of the growth, it produces irritation to the surrounding parts, and by pressure, destruction of the tissues, or it interferes with the arterial venous flow.

Symptoms.—Those common to tumors in genera lare headache, persistent and increasing in intensity, defects of vision, even blindness, defects of hearing, taste and speech, the result of paresis of the vocal cords, vertigo, associated with nausea and vomiting; convulsions, epileptiform in character, usually limited to one side of the body, occurring at regular intervals, or confined to the eyeballs or one limb, with no loss of consciousness; palsies, beginning first at strabismus, ptosis and dilatation of the pupil of the facial mucles, paraplegia and general hemiplegia; defects of sensibility, to wit: sensations of numbness, andcoldness in the limbs and body. Occasionally disturbances of equilibrium manifested by a tendency to go backward or turn to the right or left; intellectual faculties well preserved until late in the affection, when the memory becomes impaired or lost for certain articles, and finally a gradually advancing imbecility.

Diagnosis.—Rarely can a positive diagnosis be made. The following points will add: long-continued persistent headache, without appreciable cause, epileptiform convulsions, unilateral, without loss of consciousness, difficulty of vision, hearing and speech, associated with nausea and vomiting, and local and general palsies.

The location of the tumor may be determined by the more or less pronounced character of certain symptoms.

The diagnosis of the character of the growth can only be determined by a close study of the history.

Prognosis.—Unless of syphilitic origin, unfavorable; but it is to be borne in mind that all syphilitic tumors of the brain do not have a favorable termination.

Treatment.—To sustain the patient, Bovinine as a food and tonic in doses from five drops to a wineglassful from every hour to four hours, is exactly indicated.

APHASIA.

Definition.—The inability to use spoken language or give vocal utterance to ideas.

Amnesic aphasia, or loss of the memory of words by which ideas are expressed.

Ataxic aphasia, the inability to combine the different parts of the vocal apparatus for vocal expression, although the memory of words still remains, so that the afflicted person can write his ideas intelligently.

Agraphia, the inability to recognize and make the signs by which ideas are communicated in written language.

Amnesic agraphia, the inability to combine the muscular apparatus—"writers' cramp."

Paraphasia, the mental state in which the wrong words are used to express the idea.

Paragraphia, the state in which wrong or meaningless written signs are used to express the idea.

Pathological Anatomy. — The distinction between aphasia and aphonia must be clearly determined.

Aphasia is not the result of any one specific lesion, but occurs during the course of several, to wit: occlusion of certain cerebral vessels, cerebral hemorrhage; cerebral abscess or softening; meningitis; tumors; mental or moral causes; hysteria.

It is now almost definitely determined that lesions of the left middle cerebral artery, island of Reil, third frontal convolution, and parts of the corpus striatum, are associated in the production of aphasia. The lesions are usually on the left side of the brain, the aphasia being associated with right hemiplegia.

Symptoms.—The degree to which articulate language is impaired varies, from the loss of a few words to complete inability to comunicate ideas. The intellect does not suffer in proportion to the loss of words; for, showing the individual an article, while he may miscall it, if you call it by name he will recognize it. This inability to convey thoughts is a source of great mental suffering, in some leading to a suicidal tendency.

A strange clinical fact is the strong tendency to profanity shown by aphasic patients.

Diagnosis.—Aphonia, or loss of voice, should not be confounded with aphasic, or the inability to remember words.

Paralysis of the tongue, or inability to move this organ, thereby interfering with articulate language, should not be confounded with aphasia, which, as a rule, is not associated with paralysis of the tongue.

PROGNOSIS.—Controlled entirely by the cause. If the result of congestion of the brain or a syphilitic tumor, the prognosis is favorable. If associated with hemiplegia the clot may undergo absorption, and recovery follow. If associated with softening of the brain, however, the disease grows progressively worse.

TREATMENT.—As a tonic and food to improve the patient's general condition, Bovinine has no equal in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

VERTIGO.

SYNONYM—Dizziness.

DEFINITION.—Vertigo or dizziness is a subjective state, in which the individual affected, or the objects about him, seem to be in rapid motion, either of a rotary, circular, or a two-and-fro kind.

CAUSES.—The etiology of an attack of vertigo depends upon the particular variety.

Ocular vertigo results from the paresis of one or more of the ocular muscles, eye-strain or astigmatism.

Aural or auditory vertigo, or Meniere's diseases, results from disease of the semicircular canals and cochlea. Meniere's disease, properly so-called, is a sudden, severe vertigo, the result of either a hemorrhage or a serous or purulent exudation into the semicircular canals.

Gastric vertigo is the most common variety, and results from either stomachic or intestinal dyspepsia, disordered hepatic function or constipation. "The mechanism of the vertigo is complex. There are two factors: One consists in the toxic effect of the imperfectly oxidized materials which accumulate in the blood; the other is reflex. An impression made on the end organs of the pneumogastric in the stomach is reflected over the sympathetic ganglia." (Bartholow.)

Nervous vertigo is associated with migraine, sick or nervous headache, and is also caused by physical or nervous excesses, also by the immoderate use of tea, coffee,

alcohol and tobacco. It is also a result of many of the organic diseases of the brain.

Senile vertigo is the result of the disordered cerebral circulation, resulting from changes in the heart and vessels.

Symptoms.—In all varieties of vertigo, the symptom of a sensation of objects moving around the patient or the patient moving around objects which remain stationary, is present in some degree. The attack of giddiness comes on suddenly, with an indistinctness of vision and slight confusion of thoughts. The patient may fall unless he grasps something to steady himself. Nausea and vomiting and cardiac palpitation, with tinnitus aurium, are often associated with the vertiginous sensations. There is no loss of consciousness.

In the ocular vertigo, the attack is usually the result of reading, writing, sewing, or other close application of the eyes, the ordinary symptoms of vertigo being preceded by headache, nausea, specks before the eyes, and pain in the eyeballs.

In Meniere's disease the vertigo is associated with serous tinnitus aurium and the vertiginous sensations being of various forms, such as a see-saw movement, a gyratory motion, right or left; a vertical whirl, or a sensation of rising and falling, like unto the swell of the ocean. The symptoms are of long duration, becoming marked in paroxysms. The attack of aggravated vertigo is so sudden and overwhelming at times that the person is suddenly thrown to the ground, as if receiving a blow, associated with nausea and vomiting. As the condition continues, the character of the individual changes, becoming morose, irritable and suspicious.

Not all cases of Meniere's disease become permanent, but it may occur in isolated attacks, the interval being free from all sensations.

Gastric vertigo is by far the most frequent variety. Persons subject to vertigo of this kind live in constant dread of cerebral disease, which frequently results in true melancholia.

The vertiginous sensations usually occur during the course of well-marked and long-standing stomach and intestinal disorders, such as pain or oppression after meals, nausea, pyrosis, heartburn, frequent eructations and constipated or rarely diarrhœa. The abdomen is often dis-

tended with flatus. Great pain in the nucha is a very frequent occurrence. The attack may be associated with either hyperæmia or anæmia of the brain. The symptoms are not constant, but recur at intervals, sometimes remote, at other times very close on each other.

In nervous vertigo, the vertiginous symptoms are usually associated with more or less irritability of temper, restlessness and insomnia. The onset is sudden, after some one of the etiological factors. In megrim, there is headache, nausea and vomiting. This form of vertigo often precedes or replaces the epileptic convulsion; it also often precedes the softening of the brain.

In senile vertigo, the vertiginous symptoms are the result of anæmia of the brain. The attacks are developed by any exertion, often by merely assuming the erect posture. There is a swimming sensation in the head, darkness falls on the eyes, with a sensation of chilliness and prostration.

Diagnosis.—The diagnosis of the various forms of vertigo can only be determined after a close study of the history and course of the attack. The existence of organic cerebral disease must always be kept in mind in solving any case.

Prognosis.—This will be influenced by the variety of the vertigo. The prognosis is favorable in ocular and gastric vertigo. Unless the result of organic disease, the prognosis is fair, but in genuine Meniere's disease, the prognosis is unfavorable, as it also is in senile vertigo.

Treatment.—Patients, especially the aged, are greatly improved and sometimes cured by Bovinine, in doses from five drops to a wineglassful, from every hour to four hours, as the age and condition of the patient indicates.

MIGRAINE.

Synonyms.—Megrim; hemicrania; sick-headache.

Definition.—An unilateral paroxysmal pain in the head, periodical, accompanied with nausea, often vomiting, intolerance of light and sound and incapability of mental exertion, the brain for the time being temporarily prostrated and disturbed.

Causes.—In the majority of patients, the nervous predisposition to migraine is inherited, but whether inherited or acquired, it commonly develops before the age of thirty.

Among the many exciting causes are disturbances of digestion, irritation of the ovaries or womb, worry, exacting mental labor, sexual excesses and insufficient sleep. The causes of many attacks, however, are wrapped in mystery.

Symptoms. — Attacks of migraine occur in irregular paroxysms, the intervals being free from pain or nervous disturbances.

For a day or two preceding the paroxysm, it will be ascertained, on close questioning, that there was a feeling of fatigue without apparent cause, heaviness over the eyes, with some flatulency and indigestion.

The attack proper is ushered in by chilliness, nausea, often vomiting, yawning and general muscular soreness, with intolerance of light and noises in the ears and incapability for mental exertion and pain, of a sharp, shooting character, of great intensity and persistency, localized most frequently in either the frontal, temporal or occipital regions of the left side; at the same time there is a tenderness over the whole side of the head. Rarely the pain is felt on the right side and still more rarely on both sides at the same time. The nausea and other digestive symptoms may follow the onset of pain instead of preceding it.

There is more or less disturbance of the circulation, temperature and secretions of the affected parts. At times, there is marked contraction of the vessels, when the face is pale, the eyes shrunken and the pupils dilated; again, the vessels may be dilated, when the face is flushed, the conjunctives injected and the pupils contracted.

Motion, sound and light aggravate the acute suffering.

The attack may continue with more or less intensity for a few hours to two or three days, the average duration being twenty-four hours.

Diagnosis.—The symptoms are so characteristic that an error seems impossible. It may, however, be confounded with anæmic headache, hyperæmic headache, dyspeptic or bilious headache and neuralgic or rheumatic headache.

Prognosis.—While few cases of true migraine are permanently cured, the affection is free from danger to life. In a fair number of cases the susceptibility to attacks declines as the person advances in years, it being rarely seen after fifty years.

TREATMENT.—Migraine in all forms is generally the result of some form of malnutrition or functional disorder, and Bovinine, as a tonic and food, in doses from five drops to a wineglassful, as indicated, will greatly improve the patient.

ALCOHOLISM.

VARIETIES.—Acute alcoholism; chronic alcoholism.

SYNONYMS. —Acute variety, temulentia; mania-apotu; chronic variety, delirium tremens; dipsomania or oinomania.

It would hardly be correct to consider these terms interchangeable; they are rather names applied to various conditions, due to acute or chronic alcoholic poisoning.

DEFINITION.—Alcoholism is the term used to designate the physical and mental phenomena induced by the abuse of alcohol.

Temulentia, meaning drunkenness; mania-a-potu is an acute mental derangement, occurring in those of strong neurotic tendencies; delirium tremens is an attack of delirium, associated with tremors, in persons with the numerous changes resulting from chronic alcoholism; dipsomania or inomania, an alcohol insanity, in which an individual at longer or shorter intervals has paroxysms of alcoholic desires, between which he neither wishes nor craves alcohol.

CAUSES.—Predisposing causes are influences arising from unfavorable moral, social and personal conditions. Heredity.

Exciting causes are the immoderate use of alcoholic beverages, of which there are three groups: 1, spirits or distilled liquors; 2, wines or fermented liquors; and 3, malt liquors.

PATHOLOGICAL ANATOMY.—Acute alcoholism. The brain is the seat of an active hyperæmia; the mucous membrane of the stomach and duodenum is markedly injected and covered with a ropy mucus, slightly tinged with blood, and the gastric juice is altered in quality and quantity. The kidneys are also the seat of an active hyperæmia.

Chronic Alcoholism. In this condition of the economy there are no organs or tissues which do not present morbid changes. The gastro-intestinal mucous membrane pre-

sents the changes of chronic catarrhal inflammation; the liver, the first organ to receive the poison after the stomach, presents the changes of congestion, cirrhosis or fatty degeneration; the kidneys show chronic congestion and often the changes incident to chronic interstitial nephritis; the muscular structure of the heart may undergo fatty degeneration and the vessels the senile changes of the aged. The brain structure presents the changes of sclerosis in various stages, and there may be chronic meningitis and pachymeningitis with hæmatoma. The nerves are altered, atrophied and hardened, and the neuroglia, vessels and ganglion cells of the spinal cord show similar changes.

Symptoms.—Acute alcoholism, resulting from the use of a large quantity of alcoholic fluid, occurs with symptoms of mild intoxication, to drunkenness, passing to acute delirium and acute coma. The condition begins with a period of exhilaration, passing to semi-delirium, and ending in an acute coma, when the breathing is stertorous, the face bloated and congested, the lips swollen and purplish, the pupils contracted, the pulse feeble and slow, the skin cold and clammy, the temperature depressed and frequently control of sphincters lost. An individual so affected is said to be "dead drunk."

The cases of ordinary drunkenness do not often pass beyond the stage of exhilaration, ending in a mild coma or sleep.

Mania-a-potu, or acute alcoholic delirium, is the direct result of alcoholic excess in those engaged in a sudden debauch, or who have drunk alcoholic beverages very "hard" for a comparatively short period. The individuals grow more and more excitable, lose all desire for food, are unable to sleep, become the prey of horrible hallucinations—"the horrors"—finally terminating in mania, which resembles delirium tremens in all, save the tremor, which is absent.

Chronic Alcoholism. The condition to which this term has been given is truly a disease. It is the result of the continued use of alcoholic beverages until one or more of the morbid organic changes have occurred. These persons are markedly dyspeptic, with coated tongue, fetid breath and early morning vomiting, straining or retching, attended with much distress. There is a gradually develop

ing muscular tremor, progressing to the ataxic gait, and insomnia. The face may either become pallid, flabby and bloated, with an imbecile expression, or swollen, rough and dusky, with great bladders under the eyes, with yellow, injected conjunctivæ. There is headache, vertigo, and attacks of hallucinations; the memory becomes weak, the judgment less accurate, the moral sense blunted and the will power weak and erratic. These and many other symptoms add to the distress of the individual, which he attempts to overcome by the use of more of the poison.

Delirium Tremens: In the majority of instances delirium results from a prolonged debauch, in an old drinker. It begins by an increased tremor, insomnia, irritable, excitable manner, followed by the characteristic hallucinations and illusions, during which snakes and all forms of repulsive reptiles are seen, causing the most intense horror and abject fear. There also occur illusions of smell and hearing. This marked excitement is followed by great depression, the skin is cold and clammy, the pulse feeble, the muscular system weak, the mind in a condition of coma-vigil, and a febrile condition, typhoid in character develops.

The ordinary duration of an attack of delirium tremens is about two weeks, although death may occur at any time from cardiac failure, cerebral hemorrhage, or alcoholic pneumonia. Convalescence dates from the beginning of refreshing sleep, the patient awakening with a clear mind and desire for food. Should the delirium subside, but the patient continue to mutter and pick at the bed-clothing, the tongue become dry and cracked and the regurgitation of dark brownish and bilious matter occur, the condition is critical and an early fatal termination may be expected.

Dipsomania or oinomania is the inherited mental condition which craves the drinking of intoxicating liquors. This is a true mental disease. It manifests itself in periodical attacks of excessive indulgence in alcoholic drinking, or this symptom of this sad disease may be replaced by other irresistible desires of an impulsive kind, such as lead to the commission and repitition of various crimes, the gratification of other depraved appetites, robbery, or even homicide.

The paroxysms at first occur at long intervals, but gradually the intervals become shorter and shorter until the individual entirely surrenders himself to alcoholic and other excesses

DIAGNOSIS.—Profound drunkenness or alcoholic coma may and often is confounded with apopletic and uræmic coma. Von Wedekind suggests the following method for diagnosing drunkenness: "By simply pressing on the supraorbital notches with a steadily increasing force, you may, with certainty of success, bring an unconscious alcoholic to his senses, and thus differentiate between alcoholic and other comas."

The symptoms of chronic alcoholism often bear a close resemblance to the following maladies: General paralysis, paralysis agitans, locomotor ataxia, cerebral and spinal softening, epilepsy, dementia and nervous dyspepsia.

In individuals whose habits are secret the question of diagnosis is attended with considerable difficulty. Anstie lays much stress upon the importance of the following four points, diagnostic of chronic alcoholism: Insomnia, morning vomiting, muscular tremor and causeless mental restlessness.

PROGNOSIS.—In acute alcoholism the prognosis is good if the patient is manageable.

In chronic alcoholism the organic changes the direct result of alcoholic habit tend to shorten life by the production of fatty heart, Bright's disease, insanity, impotence, epilepsy, melancholia and organic brain diseases. The danger in delirium tremens is heart failure of a deepening coma. Acute lobular pneumonia is a very fatal complication of all forms of alcoholism.

TREATMENT.—All cases that have been under treatment where Bovinine was used have shown a decided and rapid improvement. In many instances where cases were treated by specialists, it has been said that the effect produced by the treatment alone was never so pronounced as where Bovinine was employed in doses from a teaspoonful to a wineglassful every three hours. It should be continued indefinitely.

HEAT STROKE.

SYNONYMS.—Insolation; sun-stroke; thermic fever; coup-de-soleil; heat exhaustion.

DEFINITION.—A depression of the vital powers, the result of exposure to excessive heat. The condition manifests itself as acute meningitis (rare), heat exhaustion (common), and as true sun-stroke.

Causes.—Exposure to the influence of excessive heat, either to the direct rays of the sun or artificial heat in confined quarters, or diffused atmospheric heat without proper ventilation.

Among the predisposing causes, which act by lessening the power of the system to resist the heat, are great bodily fatigue, overcrowding and intemperance.

Pathological Anatomy.—The action of the heat upon the organism is so sudden, and the malady so rapid in its course that structural changes have not developed. The left ventricle is firmly contracted (Wood). The right heart and vessels are gorged with dark fluid blood. All the tissues and organs of the body are in a stage of great venous congestion. The blood is dark, thin, and either but feebly alkaline or decidedly acid, and its power of coagulability is destroyed. The post-mortem rigidity is early and marked.

Symptoms.—Depending upon the variety.

Acute meningitis, the result of exposure to heat, is similar to that due to other causes.

Heat-exhaustion develops with a rapid feeling of weakness and prostration, the surface cool, the face pale, the voice weak, the pulse rapid and feeble, the respirations increased, the vision growing dim and indistinct, noises develop in the ears, the individual, overcome, becomes partially or completely unconscious. In some cases the attack of prostration is sudden, the person falling unconscious, with perhaps convulsions or tremors, and shrunken features.

Sun-stroke. The symptoms, developing suddenly, with or without prodromata, are insensibility, with or without delirium, or convulsions, or paralysis, the surface flushed and hot, the conjunctiva injected, the breathing either rapid and shallow or labored and stertorous, the pulse quick, and either bounding or weak, and the temperature in the axilla ranging from 105° to 108° to 110°, with suppression of all glandular action. Death occurring, the result of asphyxia, or from a slow failure of respiration and cardiac action.

Diagnosis.—It is of great importance therapeutically, to distinguish at once between attacks of sun-strokes and heat exhaustion. Cases of sun-stroke are to be differenti-

ated from cerebral hemorrhage and alcoholic insensibility, for which purpose the clinical thermometer is indispensable.

PROGNOSIS.—Attacks of head exhaustion, if properly and promptly treated, favorable. The prognosis of sun-stroke or heat fever is unfavorable in the majority of cases, death resulting in from half an hour to several hours. Unfavorable indications are increased temperature cardiac failure, convulsions, absent reflexes, followed by complete muscular resolution.

Favorable indications are decline in surface heat and axillary or rectal temperature, stronger pulse, increased depth of respirations, restored reflexes, and return of consciousness.

TREATMENT.—As a tonic for the after effects, Bovinine, in doses from five drops to a wineglassful, from every hour to four hours, as indicated, has met with excellent results.

DISEASES OF THE SPINAL CORD.

SPINAL HYPERÆMIA.

SYNONYMS.—Spinal congestion; plethora spinalis.

DEFINITION.—An abnormal fullness of the vessels of the meninges and cord; active when arterial hyperæmia; passive when a venous hyperæmia; characterized by pain in the back, with more or less pronounced disorders of sensation and locomotion.

CAUSES.—Cold and exposure; arrested menses; arrest of a habitual hæmorrhoidal discharge; malaria; protracted erect posture; injuries to the back; certain spinal poisons, as strychnina, picrotoxinum, and alcoholic excesses.

PATHOLOGICAL ANATOMY.—Active. The post-mortem appearances are congestion of the meninges and cord, the same vessels supplying both, with numerous points of extravasation, due to the rupture of capillary vessels. The spinal fluid is increased in amount.

Passive. A general bluish discoloration, owing to the abnormal fullness of the large anastomosing vessels; the spinal fluid somewhat increased.

SYMPTOMS.—Active. Dull pain in the dorsal or lumbar region, shooting into the hips and thighs, persistent and increased by pressure; tenderness on motion; tingling sensations in the limbs and feet, and sometimes in the hands

and arms; a feeling of constriction about the abdomen is often present, with rigidity of the abdominal muscles. Increased reflexes, with disorders of motility, and when the patient is in the recumbent position, jerking of the limbs. On attempting to walk, it is accomplished with difficulty, from an incomplete loss of power.

If the upper part of the cord be affected, dyspnœa, and palpitation occur.

There often occur painful priapism and frequent nocturnal emissions.

The above symptoms may be followed by a more or less pronounced temporary depression, the sensation diminished, and the lower limbs benumbed and heavy, the movements weak.

The electro-contractility is preserved, and in many cases even increased or exaggerated.

DURATION.—From a few hours to several days; if longer, myelitis may result.

DIAGNOSIS.—Anæmia causes more or less spinal irritability and tenderness; but the history, pallor, and general weakness. unassociated with defects of motility or sensibility, will prevent error.

Spinal meningeal hemorrhage is more sudden in its onset, its violence, and its range of symptoms.

Myelitis and spinal meningitis have symptoms in common with spinal congestion, which will be pointed out when discussing those conditions.

PROGNOSIS.—Favorable, recovery occurring in three or four days.

If the symptoms show a tendency to linger, myelitis, more less pronounced, will ensue.

TREATMENT.—By its ability to build up the system and regenerate the blood, Bovinine in doses from five drops to a wineglassful from every hour to four hours is by far the best tonic.

SPINAL MENINGITIS.

SYNONYM.—Leptomeningitis spinalis.

DEFINITION. — Inflammation of the arachnoid and pia mater membranes of the spinal cord, either acute, subacute, or chronic; characterized by pain in the back, rigidity of the muscles, disorders of motility and sensibility. It may be acute or chronic.

Causes.—The disease is rare and is always due to an infection from tubercle, syphilis, typhoid fever, or septicæmia, or the result of a traumatism.

Pathological Anatomy. — Acute. Hyperæmia of the membranes, with swelling of the tissues, the result of serous infiltration, followed by purulent and fibrinous exudations. The roots of the spinal nerves are covered with exudation, and are swollen and soft. The cord proper is more or less congested and œdematous.

Chronic. Adhesion of the membranes, with more or less accumulation of fluid, resulting in atrophic degeneration of the cord from pressure.

If the disease is secondary to tubercle, these granulations are seen distributed over the pia, arachnoid, and inner surface of the dura.

Symptoms.—There are two stages: The first, the stage of irritation; the second, the stage of paralysis of motion and sensation, with atrophy. Although an inflammatory affection, yet its onset is usually sub-acute, the febrile reaction being moderate, with intense boring pain in the back, aggravated by motion, rigidity of the spine, and a sense of constriction around the body, "the girdle." Spasmodic contractions of the muscles, enervated by the nerves originating at the seat of the lesion, with inability to straighten the limbs. If the lower part of the spinal membranes is the seat, there occur retention of urine and constipation; if upper part, dysphagia, dyspnœa, and feeble heart. The muscular contractions are excited or increased by motion, but uninfluenced by pressure. Reflex movements are not abolished. The rigidity and spasmodic contraction of the muscles are followed by paralysis, more or less complete, death following from paralysis of the muscles of respiration.

If the inflammation extend to the medulla, the above symptoms are associated with disorders of speech, vomiting and delirium.

Electro-contractility, lessened or absent, both as to motility and sensibility in the affected parts.

Chronic form succeeds to the acute or originates spontaneously, and presents the same form and order of symptoms—excitation or irritation, and depression and paralysis

Diagnosis.—The points of importance are, deep, boring pains in the back, aggravated by motion but not by pressure, with spasmodic contraction of the muscles followed by paralysis.

Myelitis will be differentiated from spinal meningitis when discussing that affection.

Tetanus may be confounded with spinal meningitis. The points of distinction are: in the former occur early trismus with rhythmical spasms excited by irritation of the skin, whereas irritation of the skin does not in spinal meningitis produce muscular contractions, but movements of the limbs does do so; progressively increasing and not associated with fever.

Prognosis.—Grave. Death is either sudden, from paralysis of the respiration and of the heart, or gradual, the result of exhaustion.

Critical discharges, such as profuse perspiration, urinary flow or epistaxis occur and are followed by rapid recovery. Cases recovering may have more or less pronounced partial or complete paralysis.

Treatment.—As a tonic and food through an attack, Bovinine in doses from five drops to a wineglassful from every hour to four hours, as indicated, has met with happy results.

PACHYMENINGITIS SPINALIS

Synonyms. — Pachymeningitis spinalis interna; hypertrophic pachymeningitis; pseudo-membraneous; pachymeningitis.

Definition.—An inflammation of the inner surface of the spinal dura mater; characterized by violent pains in the head, neck, shoulders and arms, followed by contractures and paralysis of the upper extremities.

Causes. — Exposure to cold and damp; alcoholism; syphilis; gout; injuries.

Pathological Anatomy. — Hypertrophic pachymeningitis is characterized by an exudation upon the inner surface of the dura mater, which gradually solidifies into a layer of compact connected tissue; this presses upon the spinal cord and nerves, producing a myelitis, an atrophic neuritis, resulting in muscular atrophy. The most frequent seat of this form of the affection is the cervical

region, as first demonstrated by Chrcot, whence the term cervical hypertrophic pachymeningitis.

If the pseudo-membraneous form, a membraneous exudation also occurs, in which large numbers of blood-vessels develop and rupture, the hemorrhagic extravasation forming a cyst—hæmatona—which causes pressure on the cord and nerves.

Symptoms.—The onset is slow aud gradual, with irregular chills and feverishness, violent pains, and stiffness in the head, neck, shoulders and arms, continuous, but subject to exacerbations, and associated with a painful constriction of the upper thorax. Numbness and prickling occur in the arms, more marked in one than the other. Rarely nausea and vomiting occur. These symptoms may continue off and on for several months, the muscles of the painful parts atrophing, followed by spasmodic contraction, particularly of the hands and wrists, followed later by paralysis.

The paralytic stage develops gradually, with weakness in the arms, associated with contractures and rigidity. The pain continues with anæsthesia, hyperæsthesia, and trophic changes. Later, paraplegia, with rigidity, exaggerated reflexes, and spinal epilepsy develop.

The development of tuberculosis and nephritis during the progress of chronic cerebral and spinal diseases, which are the immediate causes of death, is a clinical observation.

The electro-contractility is lost.

Prognosis.—If early recognized and promptly treated, the hypertrophic form may be improved. Generally, however, the prognosis is unfavorable.

Treatment.—As a tonic and food through an attack, Bovinine, in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, has met with happy results.

ACUTE MYELITIS.

Synonyms.—Acute or general diffuse myelitis; transverse myelitis; softening of the cord.

Definition.—An inflammation affecting the substance of the spinal cord, which may be limited to the gray or white matter, and involve the whole or isolated portions of the cord. When the gray matter alone is flamed, it is termed

central myelitis; when the white matter and the meninges, it is termed cortical myelitis; it may be ascending, descending, or transverse in its extension. The disease is characterized by more or less sudden and complete loss of motion and sensation.

Causes.—Following spinal meningitis; exposure to cold and damp or wet weather; injuries to the vertebræ; prolonged functional activity of the cord; typhus fever; rheumatism; syphilis; puerperal fever, or, during the course of the exanthemata, arsenical, lead, or mercurial poisoning.

Pathological Anatomy.—Intense hyperæmia of the substance of the cord, with extravasations, giving the tissues a reddish-brown or chocolate tint, and also serous transudations, resulting in softening of the structure of the cord, the color changing to yellow and white, the nerve elements undergoing fatty degeneration, presenting the appearance and consistency of cream. The membranes also undergo more or less change.

Symptoms.—The severity of the symptoms depend upon the extent and location of the inflammation.

The onset is usually sudden, with a chill, fever, 103° F., frequent pulse, with alterations in sensibility and motility, to wit: Pain in the back, aggravated by touch and by heat and cold, with sensations of formication ("pins and needles"), the limb feeling as if asleep, or else complete anæsthesia, associated with severe neuralgic pains.

The distinction between anæsthesia, insensibility to touch, and analgesia, insensibility to pain, must be clearly determined.

A sensation of constriction around the body and limbs, as if encircled by a tight cord, "the girdle pains," is a characteristic symptom, followed by rapidly developing paraplegia, complete in a few hours, with involuntary discharges. The reflex funtions are usually abolished, as seen by attempting to cause movement of the limbs by tickling the feet, or by strinking the patella tendon; rarely are they diminished, very rarely exaggerated. The temperature of the affected limbs is lowered three or four degrees.

Sloughs and bed-sores and muscular atrophy result if the anterior cornua—the trophic centers—are affected.

The symptoms of loss of motion and sensibility, with rectal and vesical paralysis, are associated with more or less pronounced vomiting, hepatic disorders, irregularity of the heart, dyspnœa, dysphagia, apnœa, and painful priapisms. The urine is markedly alkaline in reaction, finally developing cystitis.

Among the late manifestations are shooting pains and spasmodic twitchings or contractions of one or all of the muscles of the paralyzed parts.

The electro-contractility is abolished in the paralyzed parts.

Diagnosis.—Acute spinal meningitis is distinguished from acute myelitis by severe pains, increased by pressure, with muscular contractions increased by motion, followed by paralysis much less profound than the paraplegia of myelitis; in spinal meningitis there exists cutaneous and muscular hyperæsthesia, which are absent in myelitis.

Congestion of the spinal cord is characterized by the mild character and short duration of all the symptoms.

Hemorrhage in the spinal canal is abrupt with irritative symptoms, slight paralysis, preserved reflexes, and electro-contractility.

The principal diagnosis points of acute myelitis are the "girdle" around the limbs or body, rapid and complete paraplegia, loss of sensation, lowered temperature in the affected parts, early and persistent sloughing (bed-sores), and alkaline urine or cystitis.

Prognosis.—Depends upon the location of the lesion and completeness of the symptoms.

If the paralysis is of the ascending variety, death occurs within a few days, from paralysis of the muscles of respiration.

If the trophic centres are affected, death occurs within a few days, from paralysis of the muscles of respiration.

If the trophic centres are affected, there occur bed-sores intense pyelo-nephritis and cystitis and changes in the joints; death from exhaustion in several weeks.

Central myelitis, or inflammation of the gray matter, is rapid in its progress, death occurring in a week or two.

The morbid process may be arrested and the general health restored, but some spinal symptoms will persist.

TREATMENT.—As a tonic and food through an attack, Bovinine in doses from five drops to a wineglassful from every hour to four hours, as indicated, has met with happy results.

INFANTILE SPINAL PARALYSIS.

SYNONYMS.—Myelitis of the anterior horns; poliomyelitis anterior acuta; essential paralysis of children; atrophic paralysis of children.

DEFINITION.—A rapidly developed inflammation of the anterior horns of the gray matter of the cord, occurring suddenly in children, at times in adults—acute spinal paralysis of adults—characterized by mild fever, muscular tremors and twitchings and paralysis of groups of muscles, followed by more or less atrophy.

CAUSES.—Essentially a disease of early life—the second month to the third or fourth year. The fact of it having occurred in adults must be borne in mind. Cold and damp; dentition (?); injuries to the spine; developed during convalescence from the acute exanthemata.

PATHOLOGICAL ANATOMY.—The early changes are: Medullary hyperæmia, vascular exudation and inflammatory softening, although the naked eye may not recognize any changes. Microscopical examination reveals inflammatory softening of the anterior horns of the gray matter. Among other constant lesions are atrophic degeneration of the multipolar ganglion cells, and of the anterior nerve roots.

The changes noted as occurring in the cord are usually limited to the dorso-lumbar and cervical enlargements.

As a direct result of the changes in the trophic centres and the nerve degeneration of the muscular fibres supplied, there ensue changes in the bones and joints, leading to great deformities.

SYMPTOMS.—The onset of the affection varies; it may be acute, subacute, or chronic; it is usually sudden, with an attack of mild fever of a remittent type, of a few days' duration, on recovery from which it is noticed that the child is paralyzed. Rarely, the paralysis may be preceded by convulsions.

The paralysis may affect both arms and both legs, the legs alone, or only one of the four extremities; it may, but

very rarely, be a hemiphlegia. As a rule, however, the leg suffers more frequently than the arm. In paralysis of the leg, the muscles below the knee suffer more severely than those above. The bladder and rectum are not affected, or if so, only temporarily, nor can anæsthesia or numbness be detected. The temperature of the paralyzed limb is low and the appearance cyanosed. After a few days there is a slight improvement in the paralyzed parts, although the muscles show a rapid wasting, which is progressive until all muscular tissue is gone.

The reflex movements are impaired or abolished.

The electro-contractility by the faradic current is abolished in the paralyzed parts.

With the galvanic or constant current, the "reactions of degeneration" are developed. To fully understand the meaning of this term, a knowledge of the normal electrical reactions is necessary.

The normal formula for the production of muscular contraction in the physiological state are as follows, the strength of the current being barely capable of causing fair contractions:

First. The most effective contractions are produced by the cathode (negative) pole on closing the circuit.

Second. The second most effective are produced by the anode (positive) pole on closing the circuit.

Third. The next most effective is by the anode pole on opening the circuit.

Fourth. Cathode pole contractions on opening circuit are rarely seen in the physiological state.

The "reactions of degeneration" are shown by any reversal of the regular formulæ, to-wit: If the anodal closure shows stronger contractions than cathodal closure, still greater degeneration is shown if anodal opening contractions are stronger than either of the above; and almost complete degeneration is shown by the complete reversal of the normal formulæ, as shown by distinct cathodal opening contractions.

Diagnosis.—Hemiplegia, from acute cerebral affections in children, can be distinguished from infantile paralysis by the disorders of intelligence and the special senses, and the perseverance of the normal electro-contractility.

Paralysis of myelitis occurs in older persons, and is associated with disturbances of the genito-urinary organs and bed-sores.

Pseudo-muscular hypertrophy with paralysis, begins gradually, becoming progressively worse with increase in the size of the limbs.

PROGNOSIS.—Depends upon the treatment. If prompt and proper, recovery may be said to be the rule. Mild cases recover within a few days, others as many weeks, more severe cases in a month or two. If proper treatment be not pursued for several months or years, the question of final recovery can be determined by testing for the "reactions of regeneration" with the galvanic current. There is no danger of life.

TREATMENT.—Where the condition is due to malnutrition, anæmia or deformity, Bovinine has been the means of bringing about great improvement, and should be employed for an indefinite length of time, in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

CHRONIC PROGESSIVE BULBAR PARALYSIS.

SYNONYMS.—Glosso-labio-laryngeal paralysis; bulbar paralysis.

DEFINITION.—A chronic degenerative affection of certain nuclei of the medulla oblongata; characterized by a slowly progressive bilateral paralysis of the tongue, lips, palate, pharynx, and larynx, with atrophy of the tongue and lips.

CAUSES.—Obscure. Rare before the fortieth year. Among many others may be named cold, rheumatism, gout, syphilis, and injuries about the neck.

PATHOLOGICAL ANATOMY. — "Degenerative atrophy of the gray nuclei in the floor of the fourth ventricle; with atrophy and gray discoloration of the nerve roots from the medulla, especially of the facial and hypoglossal nerves." "Atrophy and disappearance of the motor ganglion cells are always to be noted. It may be the sole lesion."

"The nerves going to the muscles exhibit sclerosis of the neurilemma, and the degenerative atrophy if found in the nerve roots coming from the bulb."

SYMPTOMS.—The disease begins insidiously. There is first noticed some difficulty in articulation, from want of

precision in movements of the tongue, particularly in the use of the lingual consonants, l, n, r, and t, which increases until that organ is completely paralyzed. The paralysis gradually invades the soft palate and pharyngeal muscles, causing difficulty in deglutition, of the orbicularis oris preventing closure of the lips, of the laryngeal muscles, interfering with articulation. With the increasing loss of power in the tongue and lips is also a gradual atrophy of these muscles; the atrophy usually antedates the paralysis. When the disease is fully developed, the condition of the patient is most pitiable, indeed; articulation is impaired or impossible, deglutition interfered with, the lips remaining apart allowing the salvia to dribble from the mouth and liquids to return through the nose with attempts at swallowing. As the malady progresses, the pneumogastric nucleus becomes involved, resulting in loss of voice, difficulty of respiration, and cardiac irregularity. The general health gradually suffers from insufficient nutrition and imperfect respiration, although the mind is clear until the end. The reactions of degeneration are present.

DIAGNOSIS.—It can hardly be confounded with any other malady.

PROGNOSIS.—Unfavorable. The duration is from one to five years.

TREATMENT.—Bovinine as a tonic and food, in doses ranging from five drops to a wineglassful from every hour to four hours has produced good effects.

SPINAL SCLEROSIS.

SYMPTOMS.—Duchenne's disease.

DEFINITION.—A myelitis; an increase in the connective tissue of the spinal cord, with atrophy of the nerve structure proper.

VARIETIES.—1. Lateral sclerosis. 2. Posterior sclerosis, or locomotor ataxia. 3. Ataxic paraplegia. 4. Cerebrospinal sclerosis.

CAUSES.—Generally a hereditary neuropathic diathesis; syphilis; alcoholism; mineral poisons; shock or injuries to the cord; exposure to cold and wet; mostly occurring between the ages of thirty-five and fifty-five; males more liable than females. It is said that railroad enginemen and firemen, as well as conductors and other trainmen,

suffer from this and other spinal diseases by reason of the continual concussion of railway travel. The freedom from the disease in the negro has been noted by Mitchell.

Pathologiacl Anatomy.—The changes in the cord are gradual in their development and follow a longitudinal instead of a transverse direction.

The form, consistency, and color of the cord are altered, it being atrophied, indurated, and of a grayish color.

The changes are hyperplasia of the connective tissue, with granular degeneration, atrophy, and disappearance of the proper nerve elements. The nerve roots undergo the same fibroid change. The joints undergo remarkable atrophic degeneration—the arthropathies or Charcot joints, consisting of an osseous hyperplasia, the joints enlarging to an enormous extent.

LATERAL SCLEROSIS.

Synonyms.—Antero-lateral sclerosis; spasmodic tabes dorsalis (Charcot); spastic spinal paralysis (Erb).

Pathogeny.—The site of the lesion is the lateral white columns, in some cases extending to the anterior horn, extending the whole length of the cord. The changes consist in the interstitial hyperplasia of the connective tissue and an atrophy of the nerve elements.

Symptoms.—The chief symptom is paraplegia, or entire loss of motion in the lower extremities. Preceding the paralysis, there occur jerking and twitching, with cramps and stiffness of the muscles of the affected parts. As the disease is progressing, the gait is of a peculiar character, termed by Hammond "the waddle," the patient stepping on the toes and showing a tendency to fall forward. There is a gradual and increasing feeling of heaviness and weakness in the affected limbs. Sensation is unaffected. Reflex phenomena are preserved, at times greatly exhalted. As the morbid process extends upward, the superior extremities suffer in the same manner as those of the lower.

Electro-contractility early impaired, and gradually declining until abolished.

CEREBRO-SPINAL SCLEROSIS.

Synonyms.—Multiple sclerosis of the brain and cord; cerebral sclerosis; spinal sclerosis; disseminated sclerosis (Charcot.)

Pathogeny.—The disease consists of the development of patches of grayish, translucent, tough nodules, varying in size from a minute microscopical object up to the size of a walnut, varying in number and widely distributed in the white matter of the hemispheres, ventricles, obtic phalamus, corpus striatum, peduncles, pons and cerebullum, while in the cord they are found in both the white and gray matter and in the columns. The deposits are also found in the nerve roots and nerve trunks. The nodules are composed of the neuroglia, much altered and a newly-formed connective tissue. The result of the nodules is pressure upon the nerve structure, ending in its degeneration.

Symptoms.—Charcot divides this variety of sclerosis into three varieties, depending upon the site of the marked changes, as the brain, the cord, or a combination of the two. The latter variety is the more common.

Rarely the malady is ushered in with apopleptiform symptoms, but generally the onset is insidious, with pains more or less severe in the limbs and back, which are attributed by the patient to rheumatism. Also a feeling of formication, itching and burning in the limbs. Loss of co-ordination of the hands in writing, or of the feet in walking, followed after a time by paresis, more or less general, with contracture of the muscles. Voluntary movements of the paretic limbs develop a tremor—the shaking tremor—which subsides when the limbs are at rest. It is these motor symptoms that have given rise to the "waddle," or "hop" gait when walking. There are also present, headache, vertigo, mental disturbances, nausea, dyspeptic distresses, disorders of vision and hearing, sexual disturbances, vesicle disorders, and often the development of bed-sores.

The disease is progressive, the symptoms developing as the various nerve tracts are invaded.

Duration.—Ranges from a year to twenty years, an average being five or ten years.

PROGRESSIVE LOCOMOTOR ATAXIA.

SYNONYMS.—Posterior spinal sclerosis; tabes dorsalis.

PATHOGENY.—The schlerosis begins and may be confined to the posterior columns in the upper lumbar and dorsal regions. Frequently it extends the entire length of the cord and invades the lateral columns. The sclerotic changes also invade the sciatic, crural and brachial nerves.

SYMPTOMS.—Locomotor ataxia may be divided into three periods: 1. Disturbances of sensation. 2. Loss of co-ordinating power. 3. Paralysis.

The onset of the disease is gradual, by sharp, darting, electric-like pains in the lower limbs, with disorders of the gastro-intestinal and genito-urinary tracts. Associated with the pains is a loss of sensation in the feet, the patient being unable to distinguish between hard and soft substances in walking, and if the upper portion of the spinal cord be affected, is unable to co-ordinate the muscles of the fingers sufficiently to button his clothing. A sensation of formication over the surface, especially over the lower limbs, and about the waist, the knee and the ankle.

Loss of co-ordination, the subject being unable to walk upon a straight line with his eyes closed, and with difficulty if his eyes are opened. Inability to preserve the erect position with the feet close together, and as the malady progresses, he throws his feet and legs in a most grotesque manner. Although the patient is unable to co-ordinate the muscles, their power is now lost, for, on being supported, he can kick or strike with his usual force.

The sight is early impaired; either double vision, or inability to distinguish between different colors. As the disease progresses, the sensation becomes more and more blunted and pain is slowly felt, in cases it being several minutes until the sticking of a pin is felt. A characteristic sign of the disease is the abolition of the patellar tendon-reflex, as well as other reflexes in the lower limbs. Loss of the sensation of the temperature also occurs. The electro-contractility is decreased in the affected limb. General emaciation is marked.

Paralysis finally ends the suffering of the patient. There is generally an entire absence of cerebral phenomena.

DIAGNOSIS.—The symptoms of these three varieties of sclerosis are so characteristic that with care an error in the diagnosis seems impossible.

Chronic myelitis is characterized by paralysis, and the course of the affections are otherwise so different that an error should not occur.

Disease of the cerebellum prevents symptoms of disordered co-ordination, but they are the result of vertigo, and associated with headache, nausea and vomiting.

Paraplegia is a true paralysis, while sclerosis is not. Neuralgic pain is not a symptom of paraplegia.

Paralysis agitans may be mistaken for disseminated sclerosis. The chief points in the diagnosis are the presence in paralysis agitans of the fine tremor continually, without shaking of the head, while in cerebro-spinal sclerosis, the tremor is produced only on movement of the muscle, and is associated with shaking of the head. Paralysis agitans, a disease of middle life; sclerosis, under forty years. Changes in the voice, speech and vision are present in cerebro-spinal sclerosis, but absent in paralysis agitans.

PROGNOSIS.—Unfavorable. Few, if any recoveries are recorded of antero-lateral or disseminated sclerosis, although rarely their progress has been retarded for a long time. There are some claims of recoveries of locomotor ataxia in the early stage, but that of a cure of a genuine case, extending to the second stage, is ever effected, seems very questionable.

TREATMENT.—As a tonic and food in the treatment of spinal sclerosis, Bovinine, in doses from five drops to a wineglassful, from every hour to four hours, as indicated, has met with the best results. Nothing acts so ideally as Bovinine.

PROGRESSIVE MUSCULAR ATROPHY.

SYNOYMS.—Wasting palsy; chronic spinal muscular atrophy; chronic poliomyelitis; amyotrophic lateral sclerosis.

DEFINITION.—A chronic progressive motor paralysis and atrophy of certain groups of muscles. The paralysis proportionate to the wasting or fibrillary atrophy.

Causes.—Most frequent in males between twenty-five and fifty years of age, and in many instances is hereditary. A predisposition seems to exist in those who habitually use one set of muscles (muscular strain). Exposure to cold and damp; lead; syphilis; injuries to the spinal column. Following such acute diseases as diphtheria, measles, acute rheumatism, typhoid and typhus fevers.

Pathological Anatomy.—Two theories as to the origin of the pathological changes are held: one that the initial lesion is in the cord (Charcot), the other in the muscular interstitial connective tissue (Friedreich).

The morbid alternations are of two groups—spinal and muscular.

The spinal changes consist in the atrophy and degeneration of the anterior columns, wasting and disappearance of the multipolar ganglion cells of the anterior horns, with hyperplasia of the neuroglia; rarely, the hyperplasia extends to the lateral columns (amyotrophic lateral sclerosis); also wasting, atrophy, and degeneration of the anterior nerve roots.

The muscular changes consist of a progressive wasting of the muscular tissue, with increase of the intersitial connective tissue. "The final result is, that the muscle is converted into a mere fibrous vein with numerous fat-cells, the development of this latter material taking place outside of the muscular elements, and in the newly-formed connective tissue." (Bartholow.)

Symptoms.—The invasion is gradual, the disease having been in progress some weeks or months before the patient discovers its existence.

Wasting begins usually in the hand, the first dorsal inter-osseus being the first to be attacked, then the muscles of thenar and hypothenar eminence, then the deltoid and so on from muscular group to group. Often, however, the extension is very erratic in its course, jumping from one group to another at some distance.

In the immense majority of cases the diseases is permanently limited to one or a few groups of muscles in the upper, or more rarely in the lower extremities. The only muscles not yet known to be attacked are those of mastication and those that move the eye-ball (Roberts).

Fibrillary contractions is an early symptom, continuing more or less marked so long as any muscular fibres remain.

It consists of wave-like movements of the muscles, excited automatically, by draughts of air or percussion. Coincident with the wasting is loss of power, disorders of sensation, coolness of the surface, and pallor of the surface.

The natural roundness and contour of the body and limbs are changed, the bones standing out in unaccustomed distinctness, giving the individual the appearance of a skeleton clothed in skin. The hand is frequently the seat of a very singular deformity—the "claw-shaped" hand.

The electro-contractility is preserved so long as muscular fibres remain.

Diagnosis.—When wasting palsy is fully developed, its diagnosis is a simple matter. In its early stages a doubt may exist, but attention to the history, symptoms and progress will determine the question.

Prognosis.—Very unfavorable, although the danger of life is often very remote. The disease may be arrested and remain stationary for years.

Treatment.—Much improvement in all cases treated, and several cures have been reported where Bovinine was employed in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

CEREBRO-SPINAL NEUROSIS.

CHOREA.

Synonyms.—St. Vitus's dance; insanity of the muscles.

Definitions.—A functional (?) disorder of the nervous characterized by irregular spasmodic movements of groups of muscles, with muscular weakness, more or less approaching paralysis of the affected parts.

Causes.—Essentially a disease of childhood; hereditary; reflex from dentition, worms, masturbation of fright; probably the result of rheumatism in many cases.

Pathological Anatmoy.—As yet there has been no constant anatomical lesion discovered, the theory of emboli having, however, many advocates.

Symptoms.—The onset is usually gradual, the child seemingly grimacing or jerking the arm or hand, as if in imitation, followed by decided, irregular jactations of the muscles of the face (histrionic spasm), of the eyelids (blepharospasm), eyeballs (nystagmus) and the shoulder,

arm and hand, finally extending to the lower extremities, interfering with motility; in severe cases, inability of self-feeding, or of holding anything in the hands. The speech is often unintelligible, the tongue constantly moving in an irregular manner.

The heart's action is tumultuous and irregular, associated with a soft, blowing, systolic murmur, most distinct at the base. The muscles are usually quiet during sleep, although this is not always the case. The mind is somewhat blunted, the temper irritable, the memory impaired. If the irregular muscular movements are confined to one side of the body it is termed hemi-chorea.

Diagnosis.—Chores was confounded with epilepsy until the points of distinction were pointed out by Sydenham.

Paralysis agitans has general muscular tremor, beginning in one limb, gradually progressing, uninfluenced by treatment; a disease of the elderly.

Post-hemiplegic chorea is the choreic movement of a paralyzed limb.

Prognosis.—The vast majority of cases recover, but relapses are very frequent.

Treatment.—Improvement has followed the administration of Bovinine as a food and tonic, in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

EPILEPSY.

Definition.—A chronic disease, of which the characteristic symptoms are a sudden loss of consciousness, attended with more or less general convulsions.

Causes.—Heredity; rarely, worry, anxiety, depression or fright. Pressure from a tumor at the periphery, or thickening of the membranes of the brain, causing pressure; dyspepsia (?); syphilis; uterine diseases.

Pathological Anatomy.—There are no constant anatomical lesions, as yet, associated with epilepsy.

Varieties.—1. Epilepsia gravior, le grand mal; 2. Epilepsia mitior, le petit mal.

Symptoms.—Le grand mal is preceded by a more or less pronounced and curious sensation, the so-called aura epileptica.

The attack proper is sudden, the subject suddenly falling, with a peculiar cry, loss of consciousness, and pallor of the face, the body assuming a position of tetanic rigidity, succeeded after a few moments by more or less pronounced clonic convulsions followed by a coma of several hours' duration. The subject awakens with a confused or sheepish expression, with no knowledge of what has occurred, unless he has injured himself during, either by a fall, or, what is very common, has bitten his tongue during the convulsions.

Le petit mal is manifested either by attacks of vertigo the consciousness being preserved, or by a passing absent-mindedness, either form being associated with slight convulsive phenomena, followed by coma of short duration.

The mental functions are not, as a rule, injured by attacks of epilepsy, unless they recur very frequently. Indeed, when at wide intervals, the subject seemed relieved by them, "the sudden, excessive and rapid discharge of gray matter of some part of the brain on the muscles," the the so-called "electrical storm," having cleared the cerebral atmosphere.

Diagnosis.—Uræmic convulsions closely resemble an epileptic attack; but the dropsy or general œdema and albuminous urine of the former should guard against error.

Feigned epilepsy often misleads the most practical expert.

Prognosis.—The vast majority of cases will not recover under treatment, but have the frequency and severity of the attacks greatly ameliorated, but sooner or later returning with their former severity. Cases the result of the various reflex causes usually recover when the cause is removed.

Treatment.—As a tonic, Bovinine has produced in several cases most happy results, and as a dressing over the site of the wound following operation it is ideal. Cases will be sighted hereafter.

HYSTERIA.

Definition.—A functional disorder of the nervous system, of the nature of which it is impossible to speak definitely; characterized by disturbances of the will, reason, imagination and the emotions, as well as motor and sensory disturbances.

CAUSES.—A morbid condition confined almost exclusively to women. Young girls, old maids, widows and childless married women are the most frequented subjects of this disorder. The paroxysms frequently develop during the menstrual epoch. The menopause is another frequent period for its manifestation. A peculiar condition of the nervous system, either inherited or acquired, is responsible for the phenomena of hysteria, the peculiar manifestation being excited by disturbances of either the sexual, digestive, circulatory or nervous systems.

Hypochondriasis, a peculiar mental condition, characterized by inordinate attention on the part of the patient to some real or supposed bodily ailment or sensation, as seen in males, is a condition much like the hysteria of the female.

PATHOGENY.—Structural alterations have thus far not been detected in cases of hysteria; it is thus a functional disturbance of the nervous system. It should, however, be borne in mind that hysterical manifestations frequently develop during the prevalence of organic diseases.

SYMPTOMS.—These will be considered under the headings of the hysterical paroxysms and the hysterical state.

The hysterical paroxysms or fit occurs nearly always in the presence of others, and develops gradually with sighing, meaningless laughter, causeless moaning, nonsensical talking and gesticulations, or a condition of figets, followed with a sensation of choking, dyspnœa and a ball in the throat, the globus hystericus. These and similar symptoms precede the fit, during which the unconsciousness is only apparent, the patient being aware of what is transpiring about her During the paroxysm the patients may struggle violently, throwing themselves about, their thumbs turned in and their hands clenched. Again, spasmodic movements occur, varying from slight twitching in the limbs to powerful general convulsive movements, to almost tetanic spasms.

The paroxysm ends by sighing, laughing, crying and yawning, and a sensation of exhaustion. During the attack, it will be noted that the surface and face are normal, showing absence of respiratory embarrassment, the breathing varying from very quiet to spluttering and gurgling sounds, the pupils not dilated, the pulse normal, the temperature normal, and absence of foaming at the mouth and wounding of the tongue.

The hysterical state is shown by disturbances of the mental, sensory motor functions respectively. It may be a permanent condition or occur at intervals with greater or less severity.

Mental disturbances. The patients are emotional, erratic, excitable, impatient and self important, showing marked effects of will and mental power.

Sensory disturbances. This is either a condition of exaggerated sensibility or hyperæsthesia, as shown by the marked effects from the slightest irritation and the cutaneous tenderness along the spine, or a condition of anæsthesia as shown by the apparent absence or recognition of pain after severe irritation, or a perverted sensibility as shown by the feeling of tingling numbness and formication. Sensibility to heat or cold are often absent. There is great perversion of the special senses in many of the cases.

Charcot, referring to the ovarian hyperæsthesia of hysteria, says: "It is indicated by pain in the lower part of the abdomen, usually felt on one side, especially the left, but sometimes in both, and occupying the extreme limits of the hypogastric region. It may be extremely acute, the patient not tolerating the slightest touch; but in other cases pressure is necessary to bring it out. The ovary may be felt to be tumefied and enlarged. When the condition is unilateral, it may be accompanied with hemianæsthesia, paresis, or contracture on the same side as the ovarialgia; if it is bilateral, these phenomena also become bilateral. Pressure upon the ovary brings out certain sensations which constitute the aura hysterica, but firm and systematic compression has frequently a decisive effect upon the hysterical convulsive attack, the intensity of which it can diminish, and even the cessation of which it may sometimes determine, though it has no effect upon the permanent symptoms of hysteria."

Motor disturbances. These phenomena embrace every variety of motor disturbances, from exaggerated excitable movements to defective or complete loss of power. With the paralysis that may occur, neither nutrition nor sensation are impaired. Hysterical paralysis is liable to frequent and sudden changes, the loss of power often disappearing suddenly. Aphonia, from paralysis of the laryngeal muscles, is a frequent form of paresis. Some hysterical patients refuse to even make an attempt at speech.

"A curious enlargement of the abdomen is observed sometimes, constituting the so-called phantom tumor. This region presents a symmetrical prominence in front, often of large size, with a constriction below the margin of the thorax and above the pubes. The enlargement is quite smooth and uniform, soft, very mobile as a whole, from side to side, resonant, but variable on percussion, and not painful. Vaginal examination gives negative results, and under chloroform the prominence immediately subsides, returning again as the patient regains consciousness."

Among the numerous other symptoms that may develop in a hysterical patient are disturbances of digestion, the circulation, the respiration, disorders of micturition and menstrual disorders.

Among other phenomena that belong to the hysterical state are to be mentioned hystero-epilepsy, a condition of hysteria to which is superadded the convulsion, epileptic in form; catalepsy, a condition in which the will seems to be cut off from certain muscles, and in whatever position the affected member is placed, it will so remain for an indefinite time. There may or may not be unconsciousness and loss of sensation; trance, the individual lying as if dead, circulation and respirations having almost ceased; ecstacy, a condition in which the individual pretends to see visions and acts in the most ridiculous manner.

Diagnosis.—The hysterical state is so general in its manifestations that it is to be borne in mind in diagnosing all ailments occurring in women. The diagnosis is attended with great difficulty, however, and requires the display of all the skill of the clinical to prevent error.

Prognosis.—Death from either a hysterical fit or the hysterical state is the rarest of events, if it ever occur. The ultimate recovery of a hysterical patient is of frequent occurrence. Marriage has cured many cases, although it can hardly be advised by the physician.

Treatment.—In this unhappy condition, Bovinine has had marked success, and undoubtedly through its ability to build up and through its highly nutritive properties. It should be given in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

NEURASTHENIA

SYNONYMS.—Spinal irritation; nervous prostration; nervous exhaustion.

DEFINITION.—A debility of the nervous system, causing an inability or lessened desire to perform or attend to the various duties or occupations of the individual.

CAUSES.—It may result from various chronic diseases; mental worry or emotion; overwork, as "whenever the expenditure of nerve-force is greater than the daily income, physical bankruptcy, sooner or later results" (Jackson). Neurotic temperament; sexual excesses; alcohol; tobacco.

SYMPTOMS.—Nervous debility may effect any organ of the body. It is a condition of nerve-tire or exhaustion, and hence the nervous energy necessary for functional activity of any particular organ is wanting, a fair example being seen in cases of nervous dyspepsia.

One of the earliest manifestations of nervous exhaustion is an irritability or weakness of the mental faculties, as shown by inability to concentrate the thoughts, and efforts to do so causing headache, vertigo, restlessness, fear, a a feeling of weariness and depression, together with the army of symptoms attendant on nervousness.

There may be occular disturbances, cardiac palpitation, coldness of the hands and feet, chilliness, followed by flashes of heat, followed in turn by slight sweating. Patients are troubled with insomnia or fatiguing sleep, accompanied with unpleasant dreams.

In the male, there are gento-urinary disorders, with pains in the back, giving the dread of impotence. In females, painful menstruation, ovarian irritation and irritable uterus.

DIAGNOSIS.—It is of importance to determine between a true nervous exhaustion and nervous debility, the result of organic disease. A study of the history of the case, together with the symptoms, should prevent error.

PROGNOSIS.—Unless there be a tendency to mental disorders, the prognosis is good.

TREATMENT.—As a tonic and food, Bovinine, in doses from five drops to a wineglassful, from every hour to four hours, as indicated, has produced happy results

EPOPHTHALMIC GOITRE.

Synonyms.—Graves' disease; Basedow's disease.

Definition.—A disease of the nervous system; characterized by protusion of the eyeballs, enlargement of the thyroid gland, dilatation of the arteries and palpitation of the heart.

Causes.—An undemonstrative condition of the nervous system, either inherited or acquired, is the predisposing cause of Graves' disease. Among the exciting causes are anæmia, shock, fright, chagrin, worry and reverses of fortune.

It is more common in women than in men.

Pathological Anatomy.—"Some structural alterations have been found, in the majority of cases, in the sympathetic ganglia, and especially in the inferior ganglia" (Bartholow). The veins and arteries of the thyroid gland are dilated, the result of a vasamoter paralysis. The enlargement of the gland is the result of the dilated vessels, a serous infiltration of its tissues, followed, if long continued, by hypertrophy. A considerable increase of fat behind the eyeballs has been observed. In the majority of cases, more or less anæmia exists.

Symptoms. — The development of the quarternary of symptoms may occur suddenly, the result of some great shock to the nervous system, but in the majority of instances, the symptoms develop slowly and insidiously, with cardiac palpitation, with paroxysms of more marked acceleration, the pulse rate varying from 90 to 120, 150 and rarely as high as 200 beats per minute; soon pulsations of the vessels of the neck and thyroid glands may be felt and seen. The enlargement of the thyroid gland—the goitre—appears gradually after the development of the circulatory disturbances, although rarely it may be the first symptom observed. The goitre is elastic, rather soft, and has a thrill similar to aneurism. The degree of enlargement varies in different cases, and in none ever attains a very great size. Following the development of the goitre occurs the protrusion of the eyeball—the exophthalmus—which may be confined to one eye, but usually occurs in both. Prominence of the eyeball may be the first symptom observed, but usually it does not develop until after the appearance of the goitre. The degree of protrusion varies

from a slight staring expression to a point so great that the eyelids cannot cover the balls. Associated with the protrusion of the eyeballs is inco-ordination in the movements of the eyelids and the eyeball, the diagnostic rule of Graefe, so that when the eyes are quickly cast down, the eyelids do not follow them, the sclerotic being visible below the upper lid. Vision is unimpaired. Conjunctivitis may arise, the result of the imperfect protection of the protruding ball by the eyelids.

Associated with the pathognomonic symptoms are nervousness, irritability of temper, headache, insomnia, vertigo, fits of despondency, aphonia and cough, the result of pressure of the goitre, disorders of digestion, increase of temperature, anæmia and loss of flesh.

Diagnosis. — The fully developed disease presents no difficulties in diagnosis, but during its incipiency, before the characteristic symptoms have appeared, the disease may be confounded with such conditions as cardiac disease, neurasthenia, lithæmia, malaria, or incipient phthisis.

Prognosis.—Recovery occurs in a fair number of cases, but is slow and tedious. The disorders of the circulation lead to dilated heart in many cases, and ultimately death occurs from this cause. Relapses are frequent.

Treatment.—Bovinine, as a tonic, in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

DISEASES OF THE NERVES.

NEURITIS.

Definition.—An inflammation of the nerve trunks, characterized by pain and paresis of the parts supplied by the affected nerve trunk.

Causes.—Wounds and injuries; cold and damp.

Pathological Anatomy. — Hypseræmia, followed by exudation into the nerve, "which becomes softened and ultimately breaks down into a diffluent mass." Migration of white corpuscles takes place into the neurilemma. Recovery may occur before destruction of the nerve elements is produced, absorption of the exudation occurring. "It is important to note that when inflammation occurs in a nerve it may extend from the point first diseased upward (neuritis ascendens), or downward (neuritis descendens).

SYMPTOMS.—The onset may be accompanied with febrile reaction. The most decided symptom is pain along the course of the nerve trunk and its peripheral distribution, of a burning, tingling, tearing, intense character, increased by pressure or motion. If the affected nerve be a mixed one—sensory and motor—spasmodic contractions and muscular cramps occur, followed by impaired motion, terminating in paresis of the muscles, innervated by the affected trunk.

If the inflammation proceed to destruction of the nerve trunk, wasting and degeneration of the muscular tissue ensues. Various trophic changes also occur, such as cutaneous eruptions and clubbing of the nails. The electro-contractility is impaired or lost.

DIAGNOSIS.—Mylagia or muscular pain is not associated with paralysis, nor does the pain follow the course of a nerve trunk.

PROGNOSIS.—Generally favorable, with proper treatment.

TREATMENT.—Much improvement has followed the tonic and nutritive effects of Bovinine, given in doses ranging from five drops to a wineglassful, from every hour to four hours, as indicated.

NEURALGIA.

DEFINITION.—A disease of the nervous system, manifesting itself by sudden pain, of a sharp and darting character, mostly unilateral, following the course of the sensory nerves.

VARIETIES.—1. Neuralgia of the fifth nerve. 2. Cervico-occipital neuralgia. 3. Cervico-brachial neuralgia. 4. Dorso-intercostal neuralgia. 5. Lumbo-abdominal neuralgia. 6. Sciatica.

CAUSES.—Heredity; anæmia; malaria; syphilis; metallic poisons; anxiety; mental exertion; exposure to cold and damp; injuries of a nerve trunk.

PATHOLOGICAL ANATOMY.—The old axiom of neuralgia being "the cry of the nerves for pure blood" is most true. The changes in the nerve trunks or centres have as yet been determined. A fair number of cases present the changes of neuritis.

NEURALGIA OF THE FIFTH NERVE

SYNONYMS.—Tic-douloureux; Fothergill's Disease.

SYMPTOMS.—Paroxysmal pain, of a sharp, daring, stabbing character, most common at points along the course of the super and infra-orbital branches of the fifth nerve of the left side, attended with increased lachrymation. When of any duration, nutritive changes are observed in the nervous distribution, to-wit: œdema along the course of the nerve, gray eyebrows and convulsive twitches of the muscles, termed "tic douloureux," tenderness at the infra and supra-orbital foramina, as well as along the course of the nerve distribution.

CERVICO-OCCIPITAL NEURALGIA.

SYMPTOMS.—Paroxysmal pain, of a sharp and lancinating, or deep, heavy, tensive character, along the course of the occipital nerve, upon one or both sides, extending from the vertex, and on the neck as far down as the clavicle, and upward and forward to the cheek; may be associated with hyperæsthesia of the skin, and with cramps in the cervical muscles, and with attacks of herpes. A sensation of cracking at the nape of the neck is an annoying symptom in many cases.

CERVICO-BRACHIAL NEURALGIA.

SYMPTOMS. Paroxysmal pain, of a severe, boring, burning or tensive character, with sensations of numbness and weakness of the arm, hand, shoulder, scapula and mamma, with tenderness along the cervical plexus. Œdema of the arm and other parts along the distribution of the cervical plexus occur if the neuralgia be of long duration, the result of nutritive changes, the limb at times becoming pale, the skin glossy, dry and harsh.

DORSO-INTERCOSTOL NEURALGIA.

SYMPTOMS.—Paroxysmal pain, of a sharp and lancinating character, along the fifth and sixth intercostal spaces, often associated with the development of herpes, the so-called herpes zoster, or "shingles."

Tenderness at the points where the nerves emerge from the intervertegral foramina, at the sides of the chest, and at points in front

LUMBO-ABDOMINAL NEURALGIA.

SYMPTOMS.—Paroxysmal pain, of a sharp and lancinating, at times, heavy and dull character, following the course of the ileo-hypogastric nerve, ileo-inguinal and external spermatic nerve, supplying the integument of the hip, the inner side of the thigh, the scrotum and labium.

SCIATICA.

DEFINITION.—Pain following the course of the sciatic nerve. The sacral plexus is made up of the fourth and fifth lumbar and the first two pairs of sacral nerves.

SYMPTOMS.—Sciatica usually follows an attack of lumbago, the pain becoming fixed in the sciatic nerve; at times it is a true neuritis. The pain is sharp, tearing, shooting or lancinating in character, increased upon motion, shooting along the course of the nerve into the hip, inner side of the thigh, half of the leg, ankle and heel, at one or all of these points, in paroxysms lasting from a few hours to twenty-four hours or longer. The tactile sensation in the foot and motility in the limbs are impaired, and if of longer duration, wasting of the limb occurs.

DIAGNOSIS.—Rheumatism, so-called, is the only condition likely to be confounded with neuralgia.

The history of the attack, the character of the pain, with its localized spot of tenderness, should prevent such an error.

PROGNOSIS.—If promptly and properly treated, unless the result of pressure of an exostosis, aneurism or other tumor, favorable.

TREATMENT.—Loomis has said that neuralgia is the nerves crying out for better food. Consequently, what could be more indicated than the administration of pure blood. All cases show at least great improvement and many cures are reported from the administration of Bovinine, given in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

FACIAL PARALYSIS.

SYNONYM.—Bell's palsy.

DEFINITION.—An acute paralysis of the seventh cranial or facial nerve, the great motor nerve of the muscles of the face—the nerve of expression.

CAUSES.—Exposure to a current of cold air against the side of the face—over the pes anserinus—is the most frequent cause. Also due to injury or disease of the middle ear. Syphilis.

SYMPTOMS.—The facial nerve supplies the muscles of the face, the muscles of the external ear, also the stylo-hyoid, posterior belly of the digastric, the platysma one muscles of the middle ear, the stapedius, and one palate muscle, the levator palati; by means of the chorda tympani branch it controls the secretion of the parotid and submaxillary glands, and, possibly, the sense of taste. It also furnishes motor power to the azygos uvulæ, the tensor tympani and the tensor palati muscles.

The onset is usually sudden, with tingling of the lips and tongue, and upon looking unto the mirror the patient is surprised by the perfectly blank, motionless side of the face, the corner of the mouth is depressed, the eye lids open, the face drawn toward the well side, and with inability to expectorate, whistle or swallow. Any of the muscles innervated by the nerve may participate in the paresis.

The electro-contractility is feeble or lost. The reflexes are abolished.

DIAGNOSIS.—Paralysis of the muscles of the face occurs in hemiplegia; the points of differentiation are the presence of cerebral symptoms and the normal reflex excitability.

Facial palsy with otorrhœa, imperfect hearing, obliquity of the uvuola and loss of taste determine its origin within the aquæductus Fallopii.

It is the result of cold if the taste be normal and the uvula straight.

If other nerves are also involved the origin is central.

PROGNOSIS.—Favorable.

TREATMENT.—To improve the patient's general condition in this affection is very essential. Bovinine in doses from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient, can do it exactly.

DISEASES OF THE BLOOD.

ANÆMIA.

Synonyms.—Spanæmia; hydræmia.

Definition.—A deficiency of red corpuscles and albuminoid compounds—a poverty of the blood; characterized by pallor and general weakness.

Oligæmia is a lessening in the amount of blood; Ischæmia is localized anæmia.

Causes.—Predisposing and exciting.

Predisposing. Sex; the female, pregnancy and menopause; heredity.

Exciting. Deficient food, air or sunshine; excessive work; mental worry; prolonged and frequent nocturnal emissions; excessive nursing; chronic intestinal catarrh; Bright's disease; malaria.

Pathological Anatomy.—Post-mortem, the tissues are thin, shrunken and bloodless. If the anæmia has been of long duration, patches of fatty change are seen in the various organs. The blood has a brighter color, the result of diminution in the number of red corpuscles and the quantity of the hæmoglobin; it is thinner than normal, and coagulates slowly and imperfectly, from diminution of the fibrino-plastic constituent.

Symptoms.—Pallor, gums, tongue, ear and conjunctiva pale. Muscular weakness, inability for exertion. Deficient appetite and impaired digestion, attacks of vomiting, the result of anæmia of the medulla oblongata. Quickened respiration, irritable temper, vertigo in the erect position, attacks of swooning, hysteria, and rarely epilepsy. Irritable heart, with soft systolic basic murmurs and attacks of hysteria. Nocturnal emissions in male and deficient menses in female. Marasmus in children. More or less general œdema of the eyelids and ankles. Long continued, symptoms of fatty changes in various organs or gastricular result.

Diagnosis.—The symptoms of anæmia are so characteristic that an error is impossible; the cause of it, however, may be hidden.

Prognosis.—Favorable if treated early. If protracted, results in more or less general symptoms of fatty degenerations or ulcer of the stomach.

TREATMENT.—In no condition is Bovinine so completely and thoroughly indicated as in anæmia, it being distinctly a condition of the blood, necessarily calls for what pure blood can give. Rapid improvement and complete recovery invariably follows the prolonged administration of Bovinine in doses from five drops to a wineglassful from every hour to every four hours, according to the age and condition of the patient.

CHLOROSIS.

SYNONYM.—Green sickness.

DEFINITION.—A pronounced anæmia, occurring in girls about the age of puberty.

CAUSES.—Obscure; inherited; menstrual irregularities. Hammons maintains "that it is an affection of the nervous system, the blood changes being secondary."

PATHOLOGICAL ANATOMY.—The blood is deficient in red corpuscles, the volume of the fluid normal or nearly so. Rarely the mass of blood is increased. The body is well nourished and the subcutaneous fat well distributed. The organs are abnormally pale. The spleen, the lymphatics and the marrow of the bones are not affected in any manner.

SYMPTOMS.—The condition is associated with disorders of menstruation. The young girl experiences a change of disposition, becoming morose and despondent, or rarely hysterical.

"As respects the actual condition of the sexual organs, there are two forms of derangement which happen in chlorosis; there are the amenorrhæic form and the menorrhagic form." After an attack of menorrhagia or after the failure of the flow to appear, the changes occur. The complexion changes, blondes becoming pallid, waxy and puffy, without œdemia; brunettes becoming muddy and grayish in color, with bluish-black rings under the eyes. Weariness and fatigue upon the least exertion; the heart irritable, with shortness of breath. The appetite is vitiated, the digestion imperfect; attacks of gastralgia are frequent.

A not infrequent complication is gastric ulcer. Phthisis develops in those having the slightest predisposition.

PROGNOSIS.—As a rule, unfavorable, on account of the liability to grave complications. Those recovering are always liable to relapses.

TREATMENT.—Bovinine should be given in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

PROGRESSIVE PERNICIOUS ANÆMIA.

SYNONYMS.—Anæmatosis; essential anæmia; anæmia of fatty heart.

DEFINITION.—A pernicious, progressive form of anæmia, of unknown cause, resisting all treatment, and toward its termination, associated with fever.

PATHOLLGICAL ANATOMY.—The blood is scanty and pale, with diminished red corpuscles, albuminates and fibrin, showing a very feeble tendency to coagulate. There is no increase in the white corpuscles.

The marrow in adult bones becomes fœtal, red and adenoid, and contains mycrocytes; several other changes have occurred secondarily in the marrow.

Secondary to the anæmia, the heart, larger arteries and certain capillary tracts exhibit circumscribed or diffused fatty degeneration.

The liver, spleen, kidneys and stomach are decidedly anæmic, causing fatty changes in those organs. The skin may contain petechiæ, of a purplish or brownish tint, and internal hemorrhages are not infrequent. Retinal hemorrhage is rarely wanting.

There is not much emaciation, though the pallor is pronounced.

SYMPTOMS.—It begins insidiously, with increasing languor and pallor, the muscular weakness compelling the patient to take to his bed. Cardiac palpitation, dyspnœa, attacks of syncope, œdema and swelling about the ankles, with petechial spots scattered irregularly over the surface.

The appetite is waning, and nausea and vomiting occur, associated with marked dyspepsia and persistent diarrhœa. As the disease progresses, a remittent form of fever develops, the temperature frequently showing 102°–104° F.

Disorders of vision are the result of the retinal hemorrhage. The cardiac sounds are feeble and associated with soft basic or anæmic murmurs.

DIAGNOSIS. — Progressive pernicious anæmia is distinguished from simple anæmia and chlorosis by the greater severity of the former. From leucocythemia, by the normal-sized spleen and liver, and the absence of increase in the white corpuscles.

PROGNOSIS.—Unfavorable.

TREATMENT. — Although heretofore this condition has been declared incurable, under Bovinine, so far, not a single failure has been reported where it was begun in good time. It should be given in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, and continued indefinitely.

LEUCOCYTHEMIA.

SYNONYMS.—Leucæmia; white cell blood; white blood; anæmia splenica.

DEFINITION.—A condition in which there is an enormous increase in the number of white corpuscles. It may assume either a splenic, a lymphatic, or a myelogenic form, and is characterized by symptoms of pronounced anæmia.

CAUSES.—The real cause and nature of the affection is unknown.

PATHOLOGICAL ANATOMY.—The spleen is increased in size, density and firmness; the lymphatic glands all over the body also enlarge but are soft to the touch, often fluctuating; the marrow of the bones changes from its normal rose color to that of a greenish yellow; the liver also enlarges enormously. The blood is paler than normal, its specific gravity reduced 1.055 to 1.040 or lower, and the white corpuscles increased in number and in size, the red corpuscles being lessened in number and size.

SYMPTOMS.—The onset and early progress of the disease is identical with that of simple anæmia, accompanied by swelling of the abdomen and a feeling of fullness and pain in the splenic region due to enlargement of that organ.

In the lymphatic variety, enlargement of the glands in the groin, neck and axillary region are associated with the great pallor.

In the myelogentic variety, the bones, more particularly the ribs and sternum, are tender on pressure, the patient developing a waxy appearance.

In each variety the appetite is poor, the digestion feeble, the bowels loose, the patient easily fatigued, with cardiac palpitation, and dyspnœa, with œdema of the eyelids and ankles. The urine is scanty and of high specific gravity —1.020—1.030.

DIAGNOSIS.—This should cause but little trouble if enlarged spleen, lymphatic glands and tender bones are associated with great pallor, and the characteristic appearance of the blood as demonstrated by a "puncture of the finger of the patient and receiving the blood on a piece of white linen or a lawn handkerchief, and placing by the side of it a similar stain of blood from a healthy subject. The full color of the latter contrasts strikingly with the stain of the former, which is hardly of a blood color and translucent."

PROGNOSIS.—No case of recovery has yet been reported. The average duration is between two and three years.

TREATMENT.—Splendid and rapid improvement follows the administration of Bovinine in doses ranging from five drops to a wineglassful from every hour to four hours, according to the age and condition of the patient.

ADDISON'S DISEASE.

SYNONYM.—Melasma supra-renalis.

DEFINITION.—"The bronzed-skin disease." Thus defined by Averbeck: "A well-marked constitutional disease, exhibiting itself locally as a chronic inflammation of the supra-renal capsules, but in its essence consisting in a peculiar anæmic condition, always tending toward death, which is characterized by intense development of pigment in the cells of the rete malpighii and in the epithelium of the mucous membrane of the mouth."

CAUSES.—Uncertain. Tubercle, scrofula and syphilis, have each been given as the cause.

PATHOLOGICAL ANATOMY.—A low form of inflammation, terminating in degeneration of the supra-renal capsule. The blood is deficient in fibrin and red corpuscles, with a slight increase of the white corpuscles. Fatty degeneration of the heart and vessels has been observed in some cases.

"The most striking change during life—the abnormal pigmentation—is due to the disposition of granular pigment in the cells of the rete malpighii, in the papillary portion of the cutis, and even in the connective tissue corpuscles. No change occurs in the proper structure of the skin. Similar pigment deposits occur in the mucous membrane of the mouth, especially along the edges of the teeth."

"The disease of the supra-renal capsules excites an irritation of the vas-motor system—the trophic system—which leads to the pigmentation."

SYMPTOMS.—The onset of the disease is insidious, with a feeling of extreme languor, muscular fatigue, asthenia, indigestion, anorexia, dyspnœa, cardiac palpitation, vertigo, melancholia and excessive drowsiness.

The surface is first pale then changes to a hue like that of melanœmia, changing to icteroid, finally resembling the color of a mulatto, and then to a lustreless bronze. These changes also occur on the mucous membrane of the lips, tongue, gums and mouth.

PROGNOSIS.—An incurable disease. Duration, a year or two.

TREATMENT.—Marked improvement in every case and in one case a cure is reported where Bovinine was employed. It should be given in doses ranging from five drops to a wineglassful from every hour to four hours, as indicated, and continued over a long period.

HÆMOPHILIA.

SYNONYMS.—Hermorrhagic diathesis; "bleeders" disease.

DEFINITION.—A congenital condition, characterized by the habitual occurrence of hemorrhages.

CAUSE.—Hereditary.

SYMPTOMS.—The bleeding appears about the period of first dentition, and consists of spontaneous hemorrhages from the mucous membrane of the nose, mouth, lungs, stomach, intestines, or genito-urinary passages, or in perfect cases, hemorrhages occur directly from the fingers, toes, lobes of the ears, back of the hands or arms, without any apparent change in the skin, and continue, in spite of the most powerful means, for days or weeks. Traumatic hemorrhages occur if an injury of any kind is sustained about the period of the development of the bleeding.

Epistaxis is the most common form of all those named.

As a result of the great loss of blood, the subject suffers from all the symptoms of profound anæmia.

Diagnosis.—It is impossible to confound the bleeders' disease with any other affection.

Prognosis.—Death is the usual termination, within a few weeks from the time of its development, which may not be until adult life.

Treatment.—In this condition, Bovinine seems to reconstruct the delicate vessels and bring about most happy results, in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

SCORBUTUS.

Synonym.—Scurvey.

Definition.—A peculiar condition of malnutrition or anæmia, gradually developing upon a dietary deficient in fresh vegetable material; characterized by decided anæmia, debility, mental lethargy, petechiæ and a swollen and spongy state of the gums, with a tendency to bleed upon the slightest irritation.

Causes.—The disease only occurs when fresh vegetable nutriment or some appropriate substitute has been for a time partially or completely withheld.

Pathological Anatomy.—An undetermined derangement in the composition of the blood, with diminished proportion of the potash salts. Spleen enlarged. The tissues are wasted and present extravasations, due to either one of, or the combined presence of, the following conditions, to-wit: Liquid condition of the blood, allowing it to escape from the vessels, alterations in the walls of the vessels, or a vaso-motor paralysis.

Symptoms.—General weakness, lassitude, indisposition to either mental or physical exertion. The skin is dry, rough and of a muddy pallor, the face pale and bloated. Swelling and spongyness of the gums, with great tendency to bleed and an exceedingly offensive breath. Looseness of the teeth, hemorrhages of the mucous surfaces, and extravasations of blood within and beneath the skin. The

lips are pale, which is in striking contrast with the redness of the gums; the eyes are sunken and surrounded by a dark blue circle.

Hemorrhages occur from the stomach, mouth, bronchial tubes, intestinal canal and vagina. The skin is dry and rough, resembling that of a plucked fowl. Œdema of the face and ankles not infrequent.

Depression of the spirits is characteristic. Palpitation and dyspnœa on exertion. Urine high colored, speedily becoming fetid.

The patient usually longs for fresh vegetables and fruits.

Complications.—Dysentery. Scorbutic dysentery is a frequent complication. It may co-exist with typhoid and typhus fever.

Prognosis.—Favorable, if early and properly treated.

Treatment.—A vegetable diet and Bovinine as a tonic, in doses from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

PURPURA.

Synonym.—Hemorrhœapetechialis.

Definition.—An acute disease, characterized by purplish discolorations of the skin, the result of hemorrhages into the upper layers of the cutis and beneath the epidermis.

Varieties.—Purpura simplex; purpura hemorrhagica; purpura urticans.

Causes.—Not properly understood. It may occur at any age, but is especially frequent in children and elderly people. Its occurrence after the indigestion of certain articles of diet has been observed.

Symptoms.—Purpura simplex is the mildest form of the affection, and is characterized by the sudden appearance of small, bright red spots—a cutaneous hemorrhage—most commonly on the legs, associated with slight lassitude, mild febrile reaction, and aching pains in the limbs. The hue of the spots rapidly fades to a purplish color and slowly disappears. Relapses are common.

Purpura hemorrhagica has, in addition to the eruption of purpura simplex, the cutaneous hemorrhage—a flow of blood from the free surface of mucous membranes. The

most common hemorrhage is epistaxis, slight or profuse. Other hemorrhages are hæmatemesis, malæna, hæmaturia, hæmoptysis, menorrhagia, and also into the substance of the mucous membranes of the palate, cheeks and gums. This variety is associated with great debility and depression, moderate fever and disorders of digestion. Marked anæmia results from the hemorrhages.

Purpura urticans is a combination of urticaria and purpura simplex. It is characterized by "Rounded and reddish elevations of the cuticle, resembling wheals, but which are not accompanied, like the wheals of urticaria, by any sensation of itching or tingling." They are usually seated on the legs, thighs, breast and arms, and are interspersed with petechiæ. They gradually form and subside within twenty-four or thirty-six hours. Relapses are frequent.

This variety is also associated with malaise, moderate fever, and pains in the limbs.

PROGNOSIS.—Purpura simplex and purpura urticans are favorable, but relapses are very frequent. Purpura hemorrhagica is always a grave disease, often proving fatal from exhaustion, or more rarely cerebral or pulmonary hemorrhage. Recovery occurs frequently, under judicious treatment.

TREATMENT.—As a general tonic, Bovinine has, in every case so far reported, brought about decided improvement. It should be given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient.

DISEASES OF THE SKIN.

In all diseases of the skin, Bovinine is the tonic and food par excellent. In most every skin lesion, it will be observed by cliniciens that patients developing skin diseases are suffering, in the majority of instances, with either malnutrition, general debility or anæmia. Therefore, Bovinine, given in doses ranging from five drops to a wineglassful, from every hour to four hours, according to the age and condition of the patient, will rapidly restore the general system to normal, thereby aiding nature to throw off the diseased process. Drug medication in skin diseases must be indicated by the individual case.

In many forms of xenia, ring worm, scabies, syphilitic sores, scrofulous sores and others, where there is surface inflammation or ulceration, by properly cleansing the surfaces and dressing with Bovinine pure, and in some instances where there is a purulent discharge, iodoform Bovinine will bring about happy and speedy results. The iodoform Bovinine should be used as a local dressing only until all suppuration has ceased; then the Bovinine pure should be employed. Dressings should be changed from every two hours to twice in twenty-four hours.

ÆTIOLOGY AND DIAGNOSIS OF THE ANÆMIAS.

By Dr. T. J. Biggs, Sound View Hospital, Stamford, Conn.

Anæmia is poverty of the blood. The morbid state is met with as a consequence of profuse or frequently-recurring hæmorrhages, of insufficient nourishment, of affections which prevent the nutriment taken from being properly absorbed or assimilated, thus impoverishing the blood by depriving it of its most needed constituents, and of profuse chronic discharges, which drain the blood of many of its important elements, and especially of its oxygen albumen. Other causes of anæmia are by particular poisons, as by malaria, or by the retention of noxious ingredients in the blood, or by diseases of certain glands. Again it is sometimes encountered without our being able to trace it to any obvious source. But under all these circumstances we have to deal with a watery blood deficient in red corpuscles; in other words, with an anæmic condition.

Whatever may have given rise to anæmia, the manifestations of the disorder are much the same. The patient is weak and pale; his pulse is feeble but generally accelerated; the appetite is deficient or depraved; the bowels are apt to be costive. Exercise induces great fatigue, shortness of breath, and palpitation; and the disturbance of the heart may be associated with cardiac murmurs or with blowing sounds in the cervical veins, and is somtimes so persistent as to lead, as will be found elsewhere described, to structural changes in the heart. In some cases further, we meet, among the symptoms of the affection, with obstinate headache and with dropsy, and in very many with a persistent pain in the left side, in the region of the spleen.

Chlorosis.—Here the pallid, wax-like countenance, the very pale lips, and the pearly eye, afford unmistakable evidence of the deterioration of the blood, consisting chiefly in deficiency of hæmaglobulin. The complaint is especially encountered in young females, and is, as a rule, associated with amenorrhœa. Many restrict the term to the obvious anæmia combined with suppression of the menses, so often affecting girls about the age of puberty. In pure chlorosis, organic diseases of the gastro-intestinal apparatus, of the spleen and lymphatic glands, or of the lungs and kidneys, are absent, the temperature is normal; the nutrition of the body is fairly well kept up; the nervous system is irritable. Sometimes these symptoms of chlorosis happen before puberty; or there are relapses of the malady in the middle age. Boys about the age of puberty may also develop the manifestations of chlorosis.

Addison's Disease.—There is another form of anæmia which requires to be specially mentioned—namely, that connected with disease of the supra-renal capsules. Addison, whose name the complaint now bears, met with a form of general anæmia which had no perceptible cause whatever; in which there had been neither loss of blood, nor mental shock or anxiety, nor exhausting diarrhœa; which was concomitant with neither malignant nor scrofulous disease, nor with any affection of the spleen, kidneys, or lymphatic glands, nor, in fact, with any lesion that the most careful examination could detect.

While seeking for the explanation of these puzzling cases, he discovered that this peculiar anæmia always occurs in connection with the diseased condition of the supra-renal capsules, and is characterized by distressing languor and great general prostration, remarkable feebleness of the heart's action, loss of appetite, obstinate vomiting, and a singular alteration of the skin. This consists in a dingy or smoky hue of the surface; or the color may be of a deep amber or chestnut brown, or the altered skin has a bronzed tinge. The change of color begins on exposed parts, such as the face and neck and the back of the hands, and deepens first there; but we also soon find it marked in parts which are naturally the seat of much pigment, such as the axillæ, the groins, and the areolæ of the nipples. It is also marked around the umbilicus, on the penis, and on the scrotum, and is dependent upon a layer of pigment in the rete

mucosum. The skin remains soft and smooth, and becomes in large portions uniformly discolored, gradually deepening and often presenting a hue on the face and hands like that of a mulatto. Any irritation of the skin is followed by dark streaks. Discoloration in patches is both less constant and less significant than extensive alteration in the hue; yet the darkening in undoubted cases may occur in patches, which are usually most obvious on the face or superior extremities. The patient may seem at first sight to be jaundiced; but the pearly whiteness of the conjuctiva soon dispels such an idea. The nails are pale and bluish; the tongue may have patches of dark color; the body and breath at times exhale an offensive odor; and the blood has been found to contain an excess of white corpuscles and a slight decrease of the red, although it generally does not undergo any important or characteristic change.

Other symptoms are remarkable prostration, generally without any marked waste of the body, feebleness of heart's action and of pulse, and obvious anæmia. In most cases, but far from all these symptoms precede the discoloration of the skin; and they are not unfrequently associated with pain in the back and with gastro-intestinal irritation, with breathlessness upon exertion, with vertigo, and with dimness of sight or impaired hearing. A peculiar odor of the body, like that perceived in the colored race, was observed in two cases, placed on record by Mr. Hutchinson. In the last stages of the malady the temperature falls below the normal.

Death may take place gradually from the constantly-growing asthenia; or it may occur suddenly, and where the amount of prostration does not appear so excessive as to foreshadow it. The post-mortem examination shows generally the organs in question totally destroyed. According to the elaborate researches of Wilkes, the destruction is dependent upon a peculiar scrofulous degeneration; while Greenhow states it to be due to an inflammatory exudation of low type. Many of the symptoms of the fully-developed malady may be due to the implication of the nervous branches derived from the sympathetic and pneumogastric, which go to the gland. And as regards all the symptoms, it must, in a diagnostic point of view, be borne in mind that it is their combination rather than the presence of any one which gives them their value, and

that this combination consists chiefly in the association of a peculiar discoloration of the skin, with a pearly eye, well-marked anæmia, and prostration, and without the existence of any other disease than of the supra-renal capsules to account for the train of abnormal phenomena.

Greenhow has pointed out how certain very long-standing instances of phthisis exhibit an appearance exactly like that of the earlier stages of Addison's disease. Yet the abnormal pigmentation does not deepen or increase, and the symptoms remain only those of the pulmonary malady. Stains on the skin from pityriasis versicolour or from syphilis have not the seats of pigmentation characteristic of pigmental Addison's disease, and they are in patches and surrounded by healthy skin, and certainly the syphilitic affection coexists with other significant eruptions or signs.

PERNICIOUS ANÆMIA.—A fatal form of anæmia. It is an extreme anæmia advancing steadily, or with slight remissions, toward a fatal ending; yet no cause can be detected for the profound and disastrous alteration the blood is undergoing, nor indeed, can any adequate cause be discerned for its origin. To pernicious anæmia belong, therefore, most of the cases of "essential" or "idiopathic anæmia," which since the time of Addison have been reported.

The disorder is most frequent in women, and has been especially observed in child-bearing women; still, it also often happens in men, especially before the age of forty. It sometimes seems to have its origin in long-continued dyspepsia or diarrhœa, or to arise after protracted hæmorrhages or incessent worry—after indeed slowly but steadily-acting debilitating influences; and it has been noted to be of parasitic origin. But in the majority of instances it originates seemingly without cause, and although it has periods of deceptive improvement which may last for months, or, as I have known, even for a year, it usually progresses relentlessly toward a fatal issue.

What are the characteristic symptoms? An insidious beginning for the obvious anæmia, except at times when this develops itself in the pregnant state; pale tongue; bloodless lips; pearly eye, becoming paler, more bloodless, more pearly, from week to week; breathlessness; palpitation of the heart, especially on exertion; weak digestion;

constipation, or constipation alternating with diarrhœa; loud systolic murmurs in the heart, and venous hum in the jugulars; vertigo; finally, extreme exhaustion, sluggishness of mind, fainting-fits and dropsy, without persistent albumen in the urine, or disease of the liver or enlargement or valvular disease of the heart, to account for it. In the later stages, too, hæmorrhages from the nose and from the gums are not uncommon; and hæmorrhages from the uterus or from the kidneys or into the skin and into the retina, may also be noticed; the latter especially is very frequent. Yet, notwithstanding all these grave signs, the body appears well nourished; there is certainly no decided emaciation, except in instances in which fever is more commonly marked. Now, fever is a significant feature of progressive pernicious anæmia; it has been present in every case that I have met with. It is not an early symptom; belonging to the full development or to the latter part of the disease. It is of very irregular type, and not of high intensity, the temperature rarely exceeding 103 degs. F. It is apt to be continued, or to show occasional exacerbations, followed by remissions, the febrile state lasting for days, or even for a week or two, at a time; then there are periods of shorter or longer duration when it wholly disappears, to come on again in an outbreak attended with all the usual signs of a febrile paroxysm for which no cause is apparent. Toward the end of the case it is not unusual for the anæmic fever to have entirely ceased, and for the temperature to have fallen below the normal standard. The disease may run an acute course.

The state of the blood in this perilous malady has naturally been made a subject of minute investigation; the red globules are pale and strikingly diminished in number; the white corpuscles are not relatively altered, they may remain normal, and seem to be increased, because the red globules are much fewer. The paleness of the red corpuscles is due to deficiency of hæmaglobin. The shape of these was stated by Eichorst to be characteristically changed, in so far at least that the blood contains a quantity of ill-developed, small, spherical red corpuscles. But these are not pathognomonic. Nucleated red corpuscles were detected in the blood of all the patients examined by Howard; and a much larger proportion than is found normally of small discs of deep color is regarded as important.

Of the real cause of the disease we are in ignorance. No constant lesion of the blood-making glands has been found to explain the steady and destructive impoverishment of the blood. The structure of the spleen and of the lymphatic glands is not altered; the marrow of the bones may or may not be. The most constant lesion is fatty degeneration of the heart, often associated with the same change in the inner coat of the large arteries. A recent writer argues against the separation of pernicious anæmia from chlorosis.

GENERAL REMARKS ON ANÆMIA.

By T. J. Biggs, M. D., Sound View Hospital, Stamford, Conn.

Anæmia and Chronic Catarrh are two conditions of disease that resemble each other in one respect: acknowledged incurability by methods known to medicine before the introduction of Bovinine feeding for the anæmic system and for the catarrhal membrane. Another resemblance lies in the gentle and insidious operation of both conditions, causing them to be a little noted in comparison to the deadly diseases for which they co-operate in laying the foundation—consumption, for one. Consequently, patients attach comparatively little importance to them, and physicians are baffled by them without wonder or special dissatisfaction.

It is doubtful, in my mind, whether the average doctor realizes the frequency of anæmia. I am sure that if the general practitioner gave due attention to the factor anæmia, we should have comparatively few cases of disease extending into the chronic state. Too few physicians are accustomed to take into account all elements of every case, including this, the most prevalent and essential of all. Any disease that depletes the system and draws largely on the vital forces will involve the condition we call anæmia. On all such occasions, it is of the first importance for the doctor to be constantly on the lookout for this condition. The best means of diagnosis is microscopic examination of the blood, to determine its quality from the number of red corpuscles and the proportion of hæmaglobin, and also as to its freedom from bacteria.

Iron has long been the favorite remedy with the profession for the treatment of anæmia. But the majority of physicians now tell you that iron will act favorably up to a certain point only. Why is this? It is because iron pre-

parations can only stimulate cell proliferation, but cannot help the deficient nutrition of the proliferating cells. It is for this reason that, as much clinical experience has proven to me and many others, patients put on iron and other so-called blood-tonics, seldom make any permanent improvement. The agent that brings results clinically, is one that not only causes rapid cell-proliferation, but supplies the new-born cells with direct nutrition, thereby causing them to proliferate in turn; thus finally restoring the blood to the normal standard.

Take any two similar cases of anæmia, in which the action of blood and of blood tonic may be comparatively studied: give a tonic to one and Bovinine to the other, and note the results. It will be found, by careful examination of the blood and general condition, for the first two or three weeks, perhaps, that the effects are nearly identical; the tonic showing an increase of red blood cells, by proliferation due to stimulation. Thereafter, as the cases go on, note by daily examination the fate of the new born-cells. Those that are the offspring of the tonic stimulation perish, for want of the nutrition which the anæmic system cannot provide for them, and there is an end of the improvement—the usual relapse to worse condition than before. A few of these cells may get some oxygen from the lungs, but the bulk of them are carried around in the circulation in an immature and useless state, and incapable of self-proliferation, because not properly nourished.

Then observe the Bovinine case, and a very different picture will appear. The new cells produced under this treatment, receive at the same time the nourishment necessary to their full development and functional power. Instead of remaining sterile, they proliferate abundantly, and their progeny in turn carry on the proliferation indefinitely, regenerating the blood and the whole system. Without such simultaneous nourishment, it is fruitless to stimulate cell-proliferation by tonics, which cannot feed their progeny, nor find or produce nourishment for them.

Neither can the tonics go on stimulating, indefinitely. The power of being stimulated is diminished by every application of the unnatural stimulation, until it is at length annihilated. At the same time, and by the same unphysiological or rather anti-physiological intrusion, the functions of digestion and nutrition are upset; and verily, the last

state of the patient is worse than the first, or than the first would naturally have become; while the purely physiological operation of supplied blood co-operates with every interest and function of the vital economy, and steadily builds up the whole.

BOVININE IN CHLOROSIS.

By J. Carlisle de Vries, A. B., M. D.
Professor of Pathology at National University, Washington D. C.

Chlorosis is, as we know, a primary anæmia due to retarded hæmagenesis, and is characterized by a peculiar pallor and marked reduction in the percentage of hæmaglobin, and occurring almost exclusively in young girls.

The blood is paler than normal, and watery. The specific gravity decreases progressively, and the solid constituents are deficient. The number of red corpuscles may be normal, even in well developed cases, but the proportion of hæmaglobin falls progressively. In severe cases, I have seen 3,000,000 or 2,000,000 red blood corpuscles per cubic millimetre, and only 30 per cent. to 20 per cent. of hæmaglobin.

For years, the profession has battled with this malady, using every known drug in the pharmacopœia, with a view to increasing the percentage of hæmaglobin, but apparently without avail.

The great proportion of all the remedies heretofore given have undoubtedly increased the number of red corpuscles, though some have not even done that—but with no effect on the hæmaglobin; the percentage thereof in all cases remaining the same.

I began these cases with dram doses of Bovinine three times daily, and at the end of a week I made a blood examination in a case where the percentage of hæmaglobin had been 20 per cent., and was gratified to observe an increase of 10 per cent., with a corresponding increase in the number of red corpuscles. They had resumed their normal appearance; no irregularities in the size or shape being visible, and the small forms of the nucleated red blood corpuscles, of which there had been quite a crop, had entirely disappeared.

Bovinine should be given alone—that is, milk punches and stimulants being added when required—and the administration thereof persisted in until the pallor has vanished and the skin assumes the reddish tint of health.

This is the certain indication to the laity that the trouble is disappearing, and, to the attending physician, that the percentage of hæmaglobin has markedly increased; which should, of course, be verified by a blood examination.

Bovinine will produce this condition in from two to four weeks. The most delicate stomach is enabled to retain it, owing to assimilable form in which Bovinine is put up.

Case 1. M. W. D——, female; 15 years; chlorosis. Pale mucous membranes; putty-colored, flabby skin; anorexia; coated tongue; constipation and headache. Blood examination revealed 2,500,000 red corpuscles per cubic millimetre, and 35 per cent. of hæmaglobin. Began with dram doses of Bovinine thrice daily; phosphate of soda before breakfast daily, to stimulate the hepatic circulation, and put her on a full nutritious diet, milk punches twice or thrice a day, and gradually increasing exercise outdoors in the sunshine. At the end of a week she reported to me that she was much improved. Her appearance showed it. I made a blood examination and verified it. I found 3,500,000 red blood corpuscles to the cubic millimetre, and a percentage of hæmaglobin at 43. Treatment continued with slight increase in the dose. One week later I made another blood test, and found 4,000,000 blood corpuscles and 50 per cent of hæmaglobin.

Case 2. H. A. B——, aged 16 years; female; chlorosis; appetite poor; generally vomits meals, which consist of a cup of weak coffee; headache; considerable dyspnœa after exertion; often wakes up with cardiac palpitation; lost slightly in weight; temperature, as a rule, normal; pulse thin, about 100; nourishment good; muscles flabby; skin pale yellow; mucous membranes pale.

She commenced taking Bovinine in half-ounce doses three times a day.

During a period extending from October 3d to November 20th, the changes in the blood were as follows: October 3d, hæmaglobin, 40 per cent.; red blood corpuscles, 2,000,000. October 17th, hæmaglobin, 48 per cent.; red blood corpuscles, 2,500,000. October 31st, hæmaglobin, 60 per cent.; red blood corpuscles, 3,200,000. November 20th, hæmaglobin, 70 per cent.; red blood corpuscles, 4,000,000.

The mucous membranes have nearly regained their normal color. The skin and general appearance of the patient have improved. Pulse, 85; fuller and good impulse.

[The extraordinary case recorded below will profoundly interest every thoughtful physician, both from its singularity and from the importance of the instruction it affords; a case of obscured anæmia—so obscured by every appearance of robust health, that not the slightest guiding indication of the real trouble appeared, until a microscopical diagnosis revealed a form of anæmia, or blood-degeneration, most serious from its obscurity, and from its peculiar line of development. Unable to learn of a counterpart to this case, from cursory examination of the literature or from the experience of eminent consultants in New York, we should feel much obliged for any experience of a like character that others may have had, or may have heard or read of.]

OBSCURE CASE OF ANÆMIA.

By T. J. Biggs, M.D., Surgeon-in-chief, Sound View Hospital, Stamford, Conn.

Miss G. H——, Avondale, O.; age 24; American, anæmia. First seen November 6th, 1897. This case had been under treatment by various physicians, for two years, but the patient got no permanent relief. Some of the physicians had treated her for malaria; some for neurasthenia; some for chronic hepatitis; and still another, for uterine trouble. Casually observing the patient, any one might justly have exclaimed, "What a perfectly healthy specimen you are?" Not only was her complexion florid, and her figure rounded and full, but her functions—namely, menstruation, bowels and action of the kidneys—were altogether normal. It was a hard case for diagnosis. The only symptoms apparent were that at times she became exhausted after some trifling exercise, and at other times lapsed into a faint without apparent cause; nor were these attacks accompanied with hysteria; she merely complained of being weak and tired. The attacks of fainting were periodical, with at times complete unconsciousness; at other times were such as might be called le petit mal. Outside of these occasional symptoms, there was every external evidence of health in the fullest sense of the word. The patient said, however, she had noticed that her hair seemed to have grown a bit lighter within the last three or four months.

My first step was the microscopic examination of the blood, which is indispensable for intelligent diagnosis, es-

pecially in cases of this obscure description. The blood was about normal in color to the eye; microscopically, however, the picture was decidedly abnormal. One cubic centimetre of blood showed but 1,500,000 red corpuscles, with a decided overplus of white cells. The red cells were in the various stages of disintegration and paralysis. The hæmaglobin was not more than 20 per cent. of the normal quantity. In one specimen of blood from the hand of the patient, the red corpuscles were absolutely devoid of color; this being a most unusual picture and indicating, in my mind, the initial cause, if not a beginning, of fatty degeneration, a subject too extensive to be discussed within present limits.

It was accordingly determined to put the patient on the following simple course of treatment: Night and morning she was massaged with alcohol, and instructed to take plenty of outdoor exercise; at the same time observing great care in dressing to avoid catching cold. From the first, the patient thoroughly enjoyed the taking of Bovinine, and consequently a large quantity was immediately prescribed; a wineglassful every three hours, during the day, in milk. Within the first forty-eight hours, the patient felt very much improved; remarking, "Why, doctor, do you know, I feel stronger and brighter already? I know this treatment is doing me much good." The treatment was continued up to the 22d of November, when a microscopic examination of the blood showed that the quantity of hæmaglobin was increased to fully half the normal. The number of red corpuscles had also increased considerably. Since November 14th, there had been no fainting spells. In fact, the patient said she hadn't "an ache or pain." The quantity of Bovinine was now increased to a wineglassful five times a day. November 30th, microscopic examination of the blood showed the red corpuscles to be already quite normal in quantity. The hæmaglobin lacked but about one-eighth of the normal standard. From the 14th to this date, the patient had continued free from attacks of any kind. She will continue under observation for fully five weeks longer, and reports of the case may be made from time to time; certainly, in case of less favorable appearances.

ANÆMIA OF FOUR YEARS' STANDING.

By Dr. T. J. Biggs, New York.

Ella Connolly; Irish; age 34; first seen October 14th, 1897; all symptoms of well-developed anæmia, of four years' standing and resistance to all treatments hitherto employed. Her original weight had been 135 pounds, it was now 102. Her blood was of a brighter color than normal, but microscopic examination revealed a deficiency of red corpuscles and hæmaglobin. It was much thinner than usual, and coagulated slowly and imperfectly, in consequence of deficiency in the fibrino-plastic constituent. Symptoms presented were: General pallor, gums and conjunctiva pale, much muscular weakness, deficient appetite and impaired digestion, attacks of vomiting, quickened respiration, irritable temper, vertigo in erect posture, turns of swooning, and hysteria. Heart on examination was found to be very irritable, with soft systolic basic murmur. Menses had ceased for two years. There was more or less œdema of eyelids and ankles, with some symptoms of fatty changes. Cause, chronic nephritis.

Treatment:—Patient's bowels and secretions in general were thoroughly regulated, and special attention was paid to nutrition, for which, on account of the irritable condition of stomach, requiring great care in this line, she was given thirty drops of Bovinine every hour, in a tablespoonful of grape juice; also one-sixth grain of calomel every three hours. By the end of two days, the stomach was so much better that a teaspoonful of Bovinine in milk was received every two hours. Continued this, with no medicine except something occasionally to move the bowels, up to November 2d, at which time the patient's condition had materially improved, was feeling much stronger, could eat with pleasure and comfort a light, specially prepared diet, and was not easily tired as before; and blood examination showed a much improved standard, with the normal power of coagulation. The Bovinine was now increased to a tablespoonful in milk every three hours, and on December 1st to a wineglassful as often. Patient had still continued improving; all pallor had disappeared; ability and inclination for muscular exertion returned; appetite and digestion were normal, and also the action of heart; and the œdema of eyelids and ankles was entirely

gone. The same dosage of Bovinine was continued to December 18th, when the patient was discharged, with a weight of 120 pounds.

CASE OF LEUCOCYTHÆMIA.

By Dr. T. J. Biggs, Sound View Hospital.

Mary K——, Port Chester, N. Y.; Irish; aged 29; November 16th, 1898. Was called to see her, when careful examination proved it a true case of leucocythæmia; history as follows: At the onset, her condition, a year previous, was identical with that of simple anæmia, accompanied by swelling of the abdomen and a feeling of fulness and pain in the splenic region. The spleen was found to be greatly enlarged. There was great pallor, and enlargement of the axillary and groin glands. The ribs and sternum were very tender on pressure; appetite poor; digestion feeble; bowels loose; patient easily fatigued; suffered with cardiac palpitation and dyspnœa; œdema of the eyelids and ankles; urine scanty, with a specific gravity of 1.03. Microscopic examination of blood revealed an enormous increase in the number of white corpuscles, a deficiency of red cells, and a reduced quality and quantity of hæmaglobin. Advised patient to abstain from all care and worry; seek some quiet place in the country, where she could have plenty of fresh air, sunshine and pleasant surroundings. This she consented to do. I had her begin with a teaspoonful of Bovinine in milk every hour, and ten drops of bromide of gold and arsenic every three hours.

November 21st, Bovinine was increased to a tablespoonful every two hours. At this time the patient said she felt stronger, and that her bowels were not now so loose. November 26th, patient had improved still further; bowels had become normal and the fulness and pain in splenic region were not so pronounced. Spleen, on examination, was found to be a trifle smaller.

November 30th, Bovinine increased to a wineglassful in milk every three hours. At this time, the fulness in splenic region had entirely disappeared, but there was still some pain. The œdema of the eyelids had entirely disappeared, and the patient had had no attack of cardiac palpitation for three days.

December 6th, patient was found to be still improving; spleen had almost resumed its normal size; pallor less; œdema of ankles had disappeared; urine increased in quantity and of lower specific gravity.

December 10th, patient still doing nicely; felt much stronger; had gained three pounds in weight; microscopic examination of blood now showed less excess of white blood corpuscles and an increase of red; pain in bones entirely disappeared.

December 16th, patient still improving; now able to take quite long walks without fatigue; slept well; good appetite; nearly normal digestion.

December 20th, patient had gained nine and three-quarter pounds in weight; complexion almost normal, and she felt strong enough to resume her work, which was that of lady's maid.

I would suggest that as yet no case of recovery from this condition has been recorded, and never, in my experience, have I seen a parallel case of recovery from it.

CEREBRAL ANÆMIA.

By Dr. T. J. Biggs, New York.

John Wright, Esq., an English barrister, aged 52, came to this country in the earlier part of the year, on the advice of Dr. Treves, of London, seeking benefit from an ocean voyage, change of scene and rest. Prominent among his symptoms were: general weakness and sudden failures of memory, even from moment to moment; hysterical irritability; inability to direct himself to work or bodily exercise of any kind; constant headache, relieved but slightly by lying down; vertigo aggravated by the least exertion; fainting fits; general pallor and anæmia; and a stomach so weakened and irritable that every variety of food that money could buy caused only vomiting or nausea. Since arriving in New York he had been treated by a number of our ablest physicians, who had tried all the modern drugs, foods and other means appropriate to the case, Hammond's animal extracts, electricity, etc. These sometimes stimulated a slight improvement, from which he immediately relapsed into a condition worse than ever. He was a large man, who had weighed in health nearly 15 stone, and up to the end of this treatment in America his weight was reduced to 11 stone.

In this shape, Mr. Wright was introduced to me by one of the doctors who had treated him for six weeks, and I fell back at once upon Bovinine treatment, pure and simple; beginning with a teaspoonful in a glass of milk every two hours, increasing from time to time, up to a wineglassful. In three weeks from the beginning of treatment his pallor had disappeared, also his vertigo; he could read with comfort, his memory had improved, and he had regained both appetite and ability to retain food in variety. The course of improvement continued steadily, and on December 4th he had gain d in weight fifteen and three-quarter pounds.

This interesting case has since been heard from by letter from England, whither the patient returned. He says he is still feeling splendidly, and gaining flesh.

RE-ESTABLISHMENT OF CORPUSCLES AND HÆMAGLOBIN IN NORMAL QUANTITY AND PROPORTIONS.

Cases by Dr. T. J. Biggs, New York.

Jennie W——; age 30; at R—— Hospital, New York; May 9th, 1896; all the symptoms of pernicious anæmia in an aggravated form. Anæmic from her fourteenth year, the disease had advanced to the stage of disintegration or disappearance of the red blood corpuscles, and generally of the nucleus or effective part of the white. Such was the condition of her blood when examined, showing also but 8½ per cent. of hæmaglobin and 2,400,000 corpuscles to the cu. mm. of blood. She was put upon Bovinine solely, for six weeks, when her recovery was by all external evidences complete. The hæmaglobin was raised from 8½ per cent. to 10¾ per cent. (a maximum normal), and the corpuscles from 2,400,000, to 3,900,000 in the cu. mm. of blood—a complement unprecedented in chronic anæmia, not to say of the pernicious form of the disease.

Annie P——; age 28; was first seen at R—— Hospital, New York, May 10th, 1896; after the extreme operation of hystero-ophorectomy; exhibiting anæmia in the severest form, consequent upon the shock and loss of blood; her blood showed only 8 per cent of hæmaglobin and 3,400,000 corpuscles per cu. mm. After fifty days of Bovinine treatment exclusively, her blood showed the prodigious increase of 10¾ per cent. of hæmaglobin and 4,700,000 corpuscles per cu. mm.

AT THE NEW YORK POLYCLINIC HOSPITAL.

Helen W——; age 29; May 10th, 1896; anæmia complicated with leucorrhœa; 10 per cent. of hæmaglobin and 3,100,000 corpuscles to the cu. mm. Sole treatment, one drachm Bovinine every two hours. After twenty-nine days, the hæmaglobin was 10¾ per cent., and the corpuscles were increased to 4,300,000.

BLOOD REGENERATION

By Henry Tuthill Halleck, M.D., Brooklyn, N. Y.—Own Case.

"Some three months since, while I was slowly recovering from a severe attack of diphtheria, my attention was called to Bovinine. I had no faith in such preparations, but was determined to find out in my own case if the high praise given to it was well founded. I took a large tablespoonful four times a day, diluted and flavored to suit, for nearly three weeks, by which time my anæmic condition had almost entirely disappeared, and at the same time a careful microscopic examination of my own blood, both at the beginning and at the conclusion of my use of Bovinine, showed an increase of nearly 35 per cent. of red blood corpuscles in this comparatively short time.

"Bovinine discloses large quantities of blood corpuscles floating in its albuminous fluid, by the use of a first-class microscope, with one-quarter inch objective and a B eye piece."

ANÆMIA.

By Dr. K——, New York.

Maggie Craig; age 30; very reduced case of anæmia; lips and conjunctiva pale, skin lemon-colored; blood corpuscles only 1,100,000 per cu. mm. Had been treated with all the various preparations of iron, arsenic, etc., prescribed for such conditions, together with many foods and so-called rebuilders, protonuclein, in particular, having been extensively employed; but all with absolutely no benefit, the patient growing steadily worse.

On December 22d, 1896, she was admitted to the private hospital of the celebrated Dr. K——, of New York. The secretions having been regulated, she was then put upon Bovinine every two hours, and gradually increased, with a glass of milk at three hours. Evident improvement

commenced from the second day; felt already stronger, and slept better. This daily progress was steadily continued, until January 29th, 1897, when she was found to have gained eleven pounds in weight, and on February 3d was discharged, in excellent general condition, with a good appetite, and almost normal color.

The microscopic examinations of the patient's blood during treatment revealed, on January 7th, an increase of 400,000 corpuscles; on January 26th, of 800,000; and on February 8th, five days after discharge, but with the continued Bovinine supply, of 1,200,000; a total of 2,300,000 (more than doubled); not a robust grade of blood, but quite hearty for one of her temperament, and evidently still on the increase, with a prospect of higher health than she would ever have enjoyed but for having been brought low and to Dr. K——'s hospital.

ANÆMIA WITH LIVER TROUBLE, VAGINITIS AND ULCERATION.

By Dr. S——, New York.

Mabel Snell; age 22; June 7th, 1897; two years under treatment for anæmia, without improvement; pale, waxy complexion, gums and conjunctiva bloodless; rapidly reduced in flesh, from 91 pounds to 83, within the recent month; blotches, indicating liver disturbance; enlargement of the liver; accumulation of gas in the intestines; an old vaginitis and leucorrhœa; with several points of ulceration around the external os.

The patient was ordered regular Bovinine treatment internally, with appropriate medicines. After treating the vagina and uterine ulcerations to a healthy, granulating condition, a large tampon, saturated with iodoform-Bovinine was introduced; removed in six hours, washing out the vagina with Thiersch; and these procedures were repeated from day to day, until June 30th, when the points of ulceration had become absolutely healed, the vaginitis subdued, and the leucorrhœa very much improved. July 3d, she had gained six pounds in weight, and her blood was almost up to the normal standard in red corpuscles and hæmaglobin.

ANÆMIA WITH IMPOTENCE

By Dr. E ——, New York.

Frank Sawyer; age 49; November 1st, 1896; anæmia and functional impotence, result of excesses. November 2nd, commenced Bovinine. December 1st, had gained six and three-quarter pounds; functional power was restored, with improvement evident in all respects.

ANÆMIA AND INSOMNIA.

By Dr. H——, New York.

Mary Ellis; age 40; November 3rd, 1896; anæmia and insomnia; had resisted treatment for two years. Treated with Bovinine, and by December 9th had gained five pounds, and was enjoying regular sleep of nights.

ANÆMIA.

By Dr. S——, New York.

Bessie J——; age 32; May 6th, 1897; treated with the various so-called blood-makers, at several institutions, for two and a-half years past; benefit invariably transient; all symptoms of well-defined anæmia, together with gastro-intestinal disturbance; little and non-refreshing sleep; a large decrease of hæmaglobin and red blood corpuscles. She had been put on iron in all its various forms; arsenic, cod-liver oil, various so-called nutrients, and change of air and scenery. I determined, after consultation with a professional colleague, to employ Bovinine, and this was the entire treatment thence-forward.

Her weight when first seen was 110 pounds, and on June 29th was found to be 118. Her color was now very good; her figure considerably rounded out; the gastro-intestinal disturbance entirely removed; sleep quite normal; no more headache; blood decidedly improved.

ANÆMIA WITH NEURASTHENIA

By Dr. C——, New York.

Jennie Laws; age 27; June 2nd, 1897; had been gradually failing, two years, from a severe mental shock; had lost appetite and interest in things; headaches, disturbed menstruation, and insomnia. Original weight, 140; present weight, 110. Had various physicians, with different diagnosis; but uniform results from bad to worse, ending with

a general course of patent medicines. She had taken all the preparations of iron and other so-called blood-makers, protonuclein, and the various forms of prepared foods—but no Bovinine.

Thorough examination disclosed profound anæmia; a decided deficiency of red cells and hæmaglobin, and a marked excess of white cells. The patient was ordered Bovinine in old port wine every two hours, with appropriate medicines. At the end of the second week, microscopic examination showed the red cells and hæmaglobin increased and increasing, while the white cells were reduced nearly to normal. Her appetite had returned, she slept well, felt stronger, had no more headaches, had gained four pounds in weight. Bovinine was continued until July 17th, at which time the general health of the patient was found to be nearly normal, as was also the blood standard, and she had gained twelve pounds in weight.

ANÆMIA.

By Dr. D——, New York.

John Rosenstein; age 30; June 16th, 1897; pronounced anæmia; loss of appetite, extreme weakness, insomnia, a flatulent form of atonic dyspepsia, and complete constipation; a large deficiency of red corpuscles and hæmaglobin. His weight had been 172 pounds; was now 110. For three years had been growing worse under regular treatment at various institutions and by several physicians in private practice; latterly with pepto-magnam, iron, and protonuclein, with a carefully-selected diet.

After regulating the secretions, Bovinine was given in old port wine, every two hours. At the end of a week, the patient had been relieved of a large accumulation of gas, and the dyspeptic condition was much improved. The Bovinine was now increased and continued until July 23rd; result: weight 126, a gain of sixteen pounds; blood corpuscles nearly up to normal standard of number, dyspepsia and constipation cured, complexion much bettered, feels strong, and has resumed labor.

ANÆMIA.

By Dr. S ——.

Ann Torrance; age 36; July 18th, 1897; had been suffering four years; treated by seven doctors and in six institutions, steadily growing worse. Weight reduced from 140 to 112

pounds. All the symptoms of a profound anæmia were now present, with insomnia, loss of appetite, menses irregular, missing two and three months in succession; much suffering from dysmenorrhœa and leucorrhœa; considerable functional disturbance of the heart.

First regulating the functions of the system, the patient was then put on Bovinine every two hours, with appropriate medicines.

In one week she had gained considerably in strength and slept much better. Bovinine was increased. After the first two weeks of treatment, her sleep was nearly normal, digestion much strengthened, and she was able to undertake some housework, which she had not done before two years. August 12th, she had gained three and one-half pounds, with a decided improvement at all points, insomuch that she considered herself well. Her blood had reached about the normal standard in red cells and hæmaglobin.

Considering that from two to four years under all that medicine could do this patient had only grown worse, and by reasonable inference would only have grown worse still, her restoration in little more than three weeks to substantially perfect health, must be admitted to be far beyond the most flattering precedents in medical experience. It is well also to note that this result is no exception, but one in an unbroken series of exactly the same character; no case having proved less satisfactory than this.

ANÆMIA.

By Dr. C——, New York.

Mary Riley; age 27; August 10th, 1897; anæmia of three years' standing; subjected to many treatments without improvement. All symptoms of a well defined case, with insomnia, and a highly neurotic condition; the blood deeply impoverished in cells and hæmaglobin. After regulating the secretions, a tonic to stimulate cell proliferation and glandular functions was given together with Bovinine every three hours in old port wine. Not much improvement ensued until the 20th, when a decided and rapid improvement began. Patient now gained rapidly in weight, slept better, felt stronger, had better appetite, and complexion much improved. September 7th, patient had gained seven pounds in weight, and the condition of her blood was almost up to the normal standard.

ANÆMIA.

By Dr. C——, New York.

Lilian D——; age 36; August 9th, 1897; all symptoms of well-defined anæmia; low standard of hæmaglobin and red corpuscles, with excess of leucocytes. The case had been treated at various institutions, with various forms of iron and other so-called blood-makers, but in spite of them all had steadily grown worse. Patient was ordered Bovinine in old port wine every two hours. September 10th examination showed an almost normal condition of blood and health; had gained nine pounds; her color was now good, and her strength restored.

ANÆMIA.

By Dr. R——, New York.

Annie Case; age 33; August 10th, 1897; a well-defined case of anæmia; impaired digestion and appetite, insomnia, and a marked deficiency of red corpuscles and hæmaglobin; of several years' standing; had resisted many treatments; weight originally 140 pounds; now 110. With constitutional treatment and regimen, Bovinine was given every three hours. In two weeks, Bovinine was increased, patient having already greatly improved, feeling stronger, sleeping well, appetite much better, and blood showing a decided increase of red corpuscles and hæmaglobin. On September 8th, the patient had gained ten pounds, and her blood was near the normal standard.

ANÆMIA.

By Dr. T. J. Biggs, Sound View Hospital.

Jennie M——, Stamford, Conn.; age 30; January 29th, 1898; anæmia and general malnutrition; blood profoundly lowered in quality; all the usual symptoms of a well-defined case, such as pale gums, waxy complexion, loss of flesh, and general functional disturbance; suffered nightly agonizing neuralgia.

Her digestion was so upset that I put her on only twenty drops Bovinine hourly, and gave a rectal injection of Bovinine and milk. The night passed without the neuralgia, so that she awoke greatly refreshed and improved. Bovinine and milk were increased and retained, with an enema of Bovinine and milk at night, which was retained, and this night also passed without the neuralgia. Feb-

ruary 16th, improvement was so far advanced that the rectal injection was discontinued, and Bovinine repeatedly increased, up to the 19th, when the blood showed very little shortage of red cells and hæmaglobin, and externally the patient presented every appearance of restored health.

TUBERCULAR PHARYNGITIS AND GENERAL ANÆMIA.

By Dr. T. J. Biggs, Sound View Hospital.

Avis H——, New York City; age 10; March 5th, 1898; pronounced anæmia complicated with tubercular pharyngitis; treated at a leading hospital the last three months, but had steadily grown worse; not over 1,500,000 red corpuscles to the cu. mm., and hæmaglobin barely three-fifths of normal; pharynx and tonsils in a highly vascular condition—surfaces covered with red papillæ containing tubercle bacilli; tubercular deposits were also found in the fauces, tonsils and pharynx.

Bovinine every two hours; throat cleared of septic matter with peroxide-on-Bovinine; picked up the papillæ and snipped off a great number; again pharynx and fauces thoroughly swabbed out with peroxide-on-Bovinine. This treatment was repeated twice a day, until no papillæ were discoverable, and the throat presented a healthy appearance. The tonsils being tremendously hypertrophied, and almost like scar tissue, I determined to excise them; after that applying the Bovinine-peroxide three times a day. By April 1st, the stumps of the tonsils were thoroughly covered and healed, and the throat was in a normal condition. April 14th, the little patient was discharged.

ANÆMIA.

RECTAL POLYPUS, PROLAPSUS ANI; MALASSIMILATION AND INANITION.

By Dr. T. J. Biggs, Sound View Hospital.

Clara F——, New York City; age 3; January 24th, 1898; a pronounced case of anæmia, with malassimilation and inanition, and a benign growth (polypus) in the rectum, with prolapsus ani. The general condition of the little patient was so unfavorable that it was found necessary to put her on preparatory treatment for some weeks before operations for the relief of the rectal disorders could be prudently undertaken; the blood showing but one-third of

the normal red corpuscles and about a half-proportion of hæmaglobin. There was also constipation, bowels moving but twice a week, accompanied every time by prolapsus ani, with great pain. She was at once put on Bovinine, twenty drops in milk every two hours; also rectal injections to clear the mucous surface of the rectum of diseased matter by the Bovinine-peroxide reaction and irrigation with Thiersch solution and soap suds, tepid; this followed by injection of pure Bovinine. This entire procedure and treatment was repeated daily.

On the 17th the rectal growth was injected at two points with Bovinine and salt water one to two parts, and this was repeated every other day until the 22nd; when part of the growth separated and passed out with the fæces. By this time, the little patient had improved so much that she was permitted to go out daily for exercise with a nurse.

March 12th, the operation for complete removal of the rectal growth was performed, under anæsthetic; the rectum was thoroughly dilated, and the tumor was dissected out. After due antiseptic cleansing of the mucous surface and site of operation, the rectum was gently packed with shredded China silk saturated with iodoform-Bovinine. This packing was removed daily, and Bovinine-peroxide reaction repeated, washing out with Thiersch, and re-packing as before. Continuing this procedure daily to the 21st, rectal injections of pure Bovinine were then substituted until March 29th, when the healing was complete.

Prolapsus ani after defecation still continuing, the rectum was dilated, and with a thermo-Pacquelin cautery with a small tip, five lines were cauterized, commencing at about two and one-half inches inward, and carried down to the edge of the anus in a longitudinal line with the long axis of the gut. These in healing produced cicatrices which by their contraction narrowed the gut while causing adhesion of the mucous to the muscular membrane. Following this operation, the rectum was cleansed, and packed with China Silk shreds saturated with pure Bovinine. After twenty-four hours, this packing was removed, and the rectum cleansed again with the Bovinine-peroxide reaction and Thiersch irrigation; re-packed as before; and the same procedure was repeated every day to April 10th, when all was thoroughly healed; the calibre

normal; bowels moving regularly every morning without pain or prolapsus; appetite, digestion and sleep all good; the blood by microscopical examination was fully normal in quality; and the child was running about, bright and happy, with every manifestation of perfect and vigorous health; so continuing until April 18th, when discharged.

ANÆMIA.

By Dr. T. J. Biggs.

Ida C——; age 29; January 1st, 1898. All symptoms of a well-defined case of anæmia; waxy complexion, pale conjunctiva, emaciation, loss of vitality, etc. As it was impossible to retain food of any kind on her stomach, I began with but very small doses of Bovinine per mouth, relying on rectal injection of the same. The rectal injections were retained, and a rapid improvement resulted. Patient began at once to feel stronger, slept better, digestion and appetite constantly improved, so that by January 6th she could take a teaspoonful of Bovinine in a glass of milk every two hours; on the 10th, a tablespoonful in milk every three hours; on the 12th, a wine-glassful of Bovinine every three hours. On the 21st, the blood showed red corpuscles very little below the standard number. The patient felt that she was well.

ANÆMIA.

By Dr. T. J. Biggs.

Ned Mead; age 55; September 6th, 1897; anæmia, of many years' progress; decided deficiency of both white and red blood cells, and of hæmaglobin. He took the Bovinine nicely from the outset, and within a week began to show a decided improvement in sleep and appetite. October 10th, the blood cells and hæmaglobin were almost normal, and weight increased by twelve and one-half pounds; evidently cured. November 17th, seen, in good health; blood, microscopical, normal.

PROFOUND ANÆMIA.

Linsdoonvarna, Co. Clare, Ireland.

. . . I happened to have just then a case in which I hoped Bovinine might prove useful. It was one of extreme debility, with profound anæmia. consequent upon

repeated attacks of menorrhagia. The patient's relatives believed she was in consumption, and despaired of her recovery.

With the exception of a mixture containing hydrastis and ergot to check hæmorrhage, if this should recur, I gave the patient scarcely any medicine. I believe that this mixture had to be used only once. I heard from time to time that the patient was improving. I met her a few days ago, and was agreeably surprised to find her comparatively well and strong. Her recovery is looked upon by her friends as little short of miraculous. Bovinine is likely to be a boon to this health resort.

————, L.R.C.P., Ed., &c.

ANÆMIA AND CONSUMPTION.

By Dr. T. J. Biggs, Sound View Hospital.

L—— M——; age 12; admitted January 10th, 1898. All symptoms of a well-defined case of anæmia; weight 75 pounds; also slight dulness at the right apex, indicating tubercular complication; the blood was lowered in quality; the sputum showed traces of tubercle bacilli. Treatment: A teaspoonful of Bovinine every three hours; also the following prescription in capsule—one minim pure beechwood creasote, three minims oil eucalyptus, five minims oil cinnamon—three times a day. The pharynx, larynx and fauces were swabbed out with iodoform-Bovinine daily. Patient showed improvement in a week; sleep normal, digestion much improved, assimilation about normal, and strength increased. The case being further complicated by constipation, thirty grains phosphate of soda in half a glass of hot water were given every morning before breakfast. March 7th, the Bovinine was increased to a tablespoonful in milk every three hours. Improvement continued uninterruptedly until March 20th, when the patient was discharged perfectly well; blood almost normal in quality by the microscope; sputum without a trace of bacilli; the deposit in the right apex cleared up; weight, 97½, a gain of 22½ pounds in less than ten weeks.

ANÆMIA SPLENICA.

By Dr. T. J. Biggs, Sound View Hospital.

Ella T——, Port Chester, N. Y.; age 29; March 1st, 1899; diagnosis, Anæmia Splenica. Patient had been an invalid for four years. Examination revealed the spleen enlarged;

the lymphatic glands all over the body swollen, soft to the touch, and some even fluctuating; the liver was enormously enlarged; the appetite very poor; digestion feeble; bowels very loose; patient easily fatigued; had severe attacks of cardiac palpitation and dyspnœa; also œdema of eyelids and ankles; urine scanty and of high specific gravity, ranging from 1.02 to 1.03. Microscopic examination of blood showed it to be paler than normal, the hæmaglobin reduced in quantity, the specific gravity reduced, 1.055 to 1.040, or even lower; the white corpuscles greatly increased in number and size, the red corpuscles lessened in number and size.

I will here note a characteristic point in the diagnosis of this condition. Puncture the finger of the patient with a needle and receive the blood on a piece of white linen or lawn handkerchief, and place by the side of it a similar stain of blood from a healthy subject. The full color of the latter contrasts strikingly with the stain of the former, which is hardly of a blood color, and translucent.

I would also here incidentally mention that as yet no case of recovery from this condition had been recorded. The average duration of life under this condition is between two and three years.

The following course of treatment was pursued: A teaspoonful of Bovinine in old port wine, alternating with milk, was given every hour, and the patient instructed to be out in the fresh air as much as possible. March 8th, the quantity of Bovinine was increased to a tablespoonful every two hours.

March 10th, an examination of the blood showed that the white corpuscles, although just as numerous, had decreased to normal size; specific gravity was slightly higher; the hæmaglobin and red corpuscles had increased in quantity—the liver, spleen and lymphatics were reduced in size, and the patient felt stronger. March 14th, the Bovinine was increased to a wineglassful in milk every two hours. March 23d, Bovinine in milk, a wineglassful every hour.

By this time the patient was now feeling splendidly, digestion normal; evacuations regular and well moulded; no attacks of cardiac palpitation; dyspnœa and œdema of eyelids and ankles had entirely disappeared; urine almost normal in quantity and specific gravity, 1.018.

March 31st, microscopic examination proved the blood to be nearly normal, though there was still a slight excess of white cells. The liver, spleen and gland had resumed their normal size. April 1st—the patient was discharged. A careful watch will be kept, and should there be any serious relapse a report will be made. The improvement in this case, so far as I know, is without a precedent.

HÆMATHERAPHY

AS APPLIED IN

SURGERY.

BOVININE IN SURGERY.

That Bovinine has a great range of usefulness in surgery will be demonstrated by the following few points:

1st. Bovinine by its great reconstructive power and ability to retard the pathological processes, will do away with the necessity, if properly used, of many of the so-called necessary surgical operations.

2nd. In from five drops to a wineglassful, given according to age and condition, it will fortify the system, render its functions normal, and when operation is necessary, rapidly put the patient in the best possible condition for operative procedure.

3rd. It will assure a speedy and complete convalescence.

4th. It rapidly restores the blood to normal, thereby opposing germ life and its products, doing away with the necessity of administering the many remedies, which it would be better to let alone, because their after effect may be serious.

5th. Its action is almost entirely through the blood and nervous system.

6th. During its administration, the most feeble stomach may take it and remain at rest.

HÆMORRHAGES.

A SUGGESTED IMPROVEMENT ON THE EMPLOYMENT OF SALINE INFUSION.

There is no doubt that water thrown into the circulation will destroy a large number of red blood corpuscles. It does this by means of the endosmotic process of abstracting solids from the corpuscles, rendering them unfit for the duties required of them. This has led the profession to conclude that a saline solution thrown into the blood current must be harmful to its life sustaining powers. This, however, is not so. A warm salt solution added to the blood volume, does not so materially reduce the specific gravity of the serum as to cause the solid constituents of the corpuscles to pass through their delicate retaining walls, and so starve them into uselessness. It rather, by the action of the same law, causes a useful exciting agent to enter them and render them more energetic and useful in carrying on life processes. The action of salt solution, however, is unfortunately, only temporary, and the result of a stimulation, lacking the power to supply the much needed elements of nutrition. This may be obviated and the much needed element perfectly supplied by the addition of a tablespoonful of Bovinine to a pint of salt solution at the temperature of about 90° F. By the addition of the Bovinine it has been observed that the red cell carries more oxygen and iron to build up, and the leuccocyte is given greater antitoxic power to use in fighting the poisons that are being carried in the blood current to the nerve centers. The increased specific gravity of the serum also renders the entrance of these toxines less active, as, by the law of endosmosis, the current passes from the denser into the less dense. Again, the breaking down of the molecules, containing chlorine is enhanced, and the reformation of free chlorine appropriate by preference atoms from the loosely combined molecules of the toxine, destroying them.

Therefore, it is that, by inter-arterial, intre-venous or subcutaneous injection of warm saline-bovinine-solutions, we have immediate results of a far more desirable nature than with simple saline solutions.

The method used to get the solution quickly and safely into the circulation, is as follows: Introduce a common hypodermic needle into the femoral artery just below Pou-

part's ligament, and then attach a sterilized Davidson syringe and slowly force from four to six ounces of the solution directly into the blood current. Great care should be taken against the introduction of air, and the quantity injected can be estimated by the time used; properly and carefully introduced, it takes about twenty minutes to inject four to five ounces. The syringe may be sterilized by forcing through it Thiersch's solution at a temperature of about 120° F. Another good method is to inject with an ordinary hypodermic syringe or an aspirating syringe, into the loose connecting tissue of the back, thigh and buttocks, using from one to four ounces. Rectum injections will give most remarkable results to the more timid operator, or may be used as an adjunct to the other methods. Rectally, the proportion of Bovinine should be one-half. Where direct stimulation of the heart is indicated, intra-venous injections may be employed to good advantage, but it requires much more skill and trouble than the other methods mentioned.

VIOLENT POST-PARTUM HÆMORRHAGES,

By W. S. Howe, M. D., Lewiston, Me.

I have tested Bovinine treatment in several cases, notably in a severe case of placenta previa, which occurred in one of the most dangerous of all the presentations in child-birth. The lady had had several severe hæmorrhages before her confinement, which had weakened her very much, and she was in a critical condition to undergo parturition. I found her very weak and exhausted. There was no time to lose, and I stimulated with Bovinine and brandy, immediately ruptured the membrane, and turned and delivered the child as soon as the os uteri could be dilated sufficiently. From the great loss of blood before and after delivery, the case looked doubtful. She could retain nothing but Bovinine, with a little brandy and milk, for weeks. I am confident that this treatment saved her life, and to it both this mother and child are indebted for their existence, as the child was violently ill a year after from cholera infantum, and was brought through by Bovinine treatment alone.

IN EXHAUSTION BY HÆMORRHAGE AND DISEASE.

By Dr. R. Hearn, Toronto, Ont.

I have used Bovinine with great satisfaction in partial collapse for hæmoptysis. I have found that it caused systemic reaction with almost the rapidty of transfusion. In all cases of severe hæmorrhage from any cause, or in low and depleted conditions of the body resulting from typhoid fever or septicæmia, and more especially in diphtheria, gastritis, gastric ulcer or malignant disease of whatsoever nature, its place cannot be supplied by any other preparation.

PERSISTENT POST-PARTUM HÆMORRHAGE,

By Dr. Robert Frame, Milford, Del.

I delivered Mrs. S——, age 36 years, of her third child. On the sixth day after delivery, she was seized with post-partum hæmorrhages at frequent intervals, profuse and copious, and this continued for nearly five months. I kept her strength up exclusively on Bovinine until a recovery was made. I am confident that if I had not used it in this case death would have ensued.

INJECTIONS OF BOVININE.

SUB-CUTANEOUS AND RECTAL, FOR POST-PARTUM HÆMORRHAGE, AND COLLAPSE.

OSMOSIS, ALIMENTARY OSMOSIS: AND RECTAL ALIMENTATION.

The theory and practice of clinical nutrition falls short of proper developement, if the wonderful physiological faculty of Osmosis be not well understood and employed, in a multitude of the most critical situations that confront the physician. This resource overlooked, as it too often is, or the most effective nutrient to be introduced thereby neglected, there is in many cases no other help for the perishing patient. A few elementary memoranda may properly introduce the record of the latest progress in the employment of this great physiological faculty (so to call it) in extremis. Nutriment is passed into the constructive channels and organs of the body not only through the millions of microscopic mouths called absorbents. but also, in no

unimportant proportion, through membranes in which there are neither passages or pores, being tissueless as a waterproof gum. The emulsified food in this physological process does not filter through the membrane, as if through a strainer, but first gains entrance into the very substance of the membrane by something like a solvent process; which being, of course, dependent on some quality in the substance of the nembrane itself, is called the power or faculty of imbibition. This property operates from both sides of the membrane, bringing both liquids together within it (the blood, and the lymph or chyle of digestion), where the well-known law of inter-diffusion of liquids effects a new composition, each side losing something to the other, and partly passing by each other to opposite sides; but the main body, consisting of the incoming fluid as modified and reinforced by the other, keeps on to its junction with the vital stream. This is Osmosis: the exit of the inter-diffused fluids which had met so easily within the membrane by the familiar process of soaking into it from opposite sides. But these fluids offer to our contemplation a mystery in their going forth—a mystery even greater in physiological osmosis than in our extra-physiological experiment; where we make the membrane of an egg, or a neutral fluid, a diaphragm between two liquids of different densities, or of different composition, in passing through which diaphragm they will so intermingle and interchange as to form one homogeneous solution throughout both receptacles, as if they had been connected by a pipe; or else, as in certain cases, will make two new solutions differently modified by having exchanged constituents with each other. For, considering the vital results in physiological osmosis, and especially considering the distinct selective powers of different membranes for acquiring (or imparting) widely different secretions from the same nutriment, there is reason to infer a more than mechanical process of entrance and exit (inbibition and osmosis)—something more recondite than the imbibitory and osmotic power in non-vital apparatus.

The employment of the absorptive properties of the mucous membrane of the larger intestine is the capital expedient in all cases where it is desirable to afford the stomach perfect rest, or whenever it is impossible, from any cause, to reach the circulation through this organ.

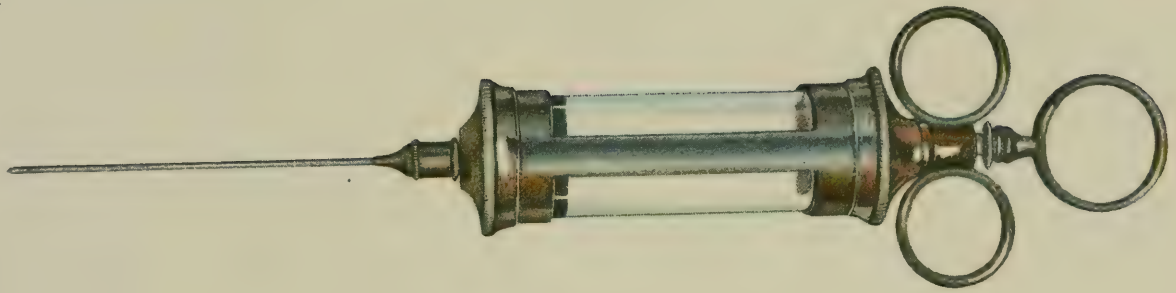
We have in the large intestine a large vasculary area which is always ready to receive and imbibe the nutrient material introduced from without for the purpose of restoring and maintaining impaired or lost vitality.

We are thus enabled to reach the circulation by the use of the rectal enemata, and it is a well-known fact that a person may be kept alive indefinitely by this means. After careful experimentation with the principal nutrients, it has been found that Bovinine fulfils these requirements in the most satisfactory manner in all cases where rectal feeding is relied upon to support life. The mucous membrane of the large intestine is a medium of directly reaching the circulation, where prompt action is imperative, as after sudden and severe hæmorrhage. Under these circumstances, it is essential to have at hand a preparation which can immediately supply the loss the system has sustained, and this is the explanation of the great success attending the use of Bovinine, as will be seen in the various reports of cases.

POST-PARTUM HÆMORRHAGE; FAILING UNDER "SALINE SOLUTION": PROMPT RESTORATION BY BOVININE INJECTION.

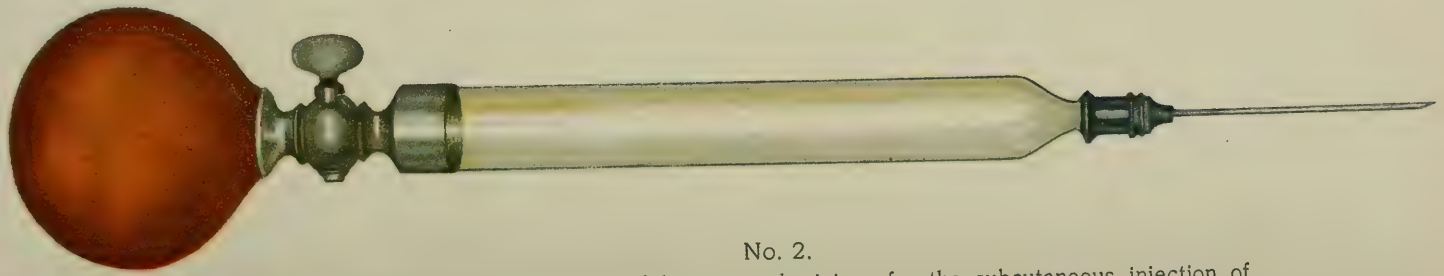
By Dr. A. M. Belch, Chicago.

L—— S——; primapara. A robust German woman, age 23, with "red cheeks," as her husband described her, suffered from post-partum hæmorrhage, which exsanguinated her almost completely. Immediately tamponing of the uterine cavity with aseptic gauze, and intra-cellular injections of a total of three gallons of normal saline infusion saved her life for the moment; but she was left in a precarious condition of subacute anæmia. I injected hypodermically four times a day for six days half an ounce of Bovinine. The woman gained from the start, and even without a blood count one could notice the rapid improvement, as the natural color returned to her cheeks quicker than can be observed by other methods of treatment, such as iron internally, nutritive clysmata, etc., and, what is more, continued on to perfect health.



No. 1.

Aspirating syringe small size, used for the subcutaneous injection of Bovinine, one generally used in Sound View Hospital, Stamford, Conn.



No. 2.

Antitoxin syringe (Koch's). Preferred by some physicians for the subcutaneous injection of Bovinine.

LARGE POST-PARTUM HÆMORRHAGE AND EXTREME COLLAPSE, INSTANT REVIVAL AND RAPID RECOVERY FROM HYPODERMIC INJECTIONS OF BOVININE.

[The distinction, and a vital one, to be noted between cases like this and those in which the collapsed blood vessels are merely filled up with injections of water, consists in the instant supply of blood—not water—replacing at once that which had been lost, sending nutrition and refreshment throughout the system, and the hourly-continued supply of the same speedily restoring the patient to the condition, or even better than that, which she was in before the hæmorrhage.]

By Dr. P——, New York.

Lucy Bramble; age 31; on December 19th, 1896, one hour after her first delivery, suffered a large loss of blood by hæmorrhage, and was found in a state of collapse, cold and clammy, pulse quivering 130 times per minute, gasping rapidly for breath, and crying out for air. Hips were quickly elevated and two hypodermic injections immediately given, each consisting of four drachms Bovinine, three of salt water and three of whisky. Improvement followed within fifteen minutes, in a stronger, fuller and slower pulse, with less rapid and distressed respiration. An hour later, a second series of injections were given, each two drachms Bovinine, one of salt water and one of whisky; recovery still progressing. The flowing ceased shortly, and the patient dropped off to sleep for the next two hours. On waking, had no pain, and felt better. Was then given a rectal injection of three ounces Bovinine, with one and a half of salt water and two tablespoonfuls of whisky; followed by a very decided improvement; the pulse dropped to 98, full and bounding; the respiration became normal. A drachm of Bovinine in port wine was given hourly until next morning, when the patient was so far recovered that large quantities of Bovinine could be taken. The patient made an uninterrupted recovery, and was finally discharged January 2d, 1897.

INJECTION FOR POST-PARTUM HÆMORRHAGE.

By Dr. S——, New York.

Mrs. K——; age 21; primapara; family history bad; poorly nourished, anæmic, and not well developed, and had scarcely seen a day when she felt well, from childhood.

Dysmenorrhœa and catarrhal endometritis added to her disadvantages. The labor was tedious, and about two hours after the delivery, the patient had quite a severe hæmorrhage. The pulse became so weak it was difficult to distinguish it; the surface became cold, and the patient was gasping for breath. It addition to the usual treatment, a high warm enema of Bovinine, whisky and salt water was given every four hours, and Bovinine by the mouth every half hour. The physician in charge at first objected to this plan of treatment, but seeing the marked and rapid improvement, said it gave the best and quickest results he had ever seen. Bovinine was continued by the mouth three times a day for about four months, at the end of which time she looked better, felt stronger, and weighed more than ever before in her life.

POST-PARTUM HÆMORRHAGE.

By Dr. S——, New York.

Mrs. W—— ——; age 28; II-para; family history good. The present labor was complicated by an accidental hæmorrhage, necessitating rapid delivery. The large quantity of blood lost produced the usual symptoms in exsanguination, syncope, cold surface, feeble pulse, etc. Treatment and result identical in all respects with case as above reported.

SUBCUTANEOUS AND RECTAL INJECTIONS OF BOVININE FOR POST PARTUM HÆMORRHAGE.

By Dr. T. J. Biggs, New York.

June 23d, 1894, I saw with Dr. S——, Mrs. T——, who had lost a large quantity of blood, the result of a post-portum hæmorrhage, was in a collapsed state, pulse very weak, ranging from 173 to 179, skin cold and clammy, and respiration rapid. Following the usual restoratives, six ounces of Bovinine and salt water were injected into the right nates and four into the left, with the most happy results. In an hour the patient's pulse had dropped to 99, and was stronger; respiration almost normal. A rectal injection of six ounces Bovinine in salt water was given, and in about an hour she fell into a quiet sleep. Two weeks from the date of the first subcutaneous injection, the patient was again in full health

POST-PARTUM HÆMORRHAGE AND COLLAPSE.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. C——, Stamford, Conn; age 30; August 27th, 1898; case of parturition, stillborn; I was called in consultation, and found the patient almost floating in her own blood. A rapid examination showed that one of the uterine sinuses had not closed, and a small portion of the placenta had been retained. Hastily sterilizing my hand, I passed it well up into the uterus, carrying in it (while removing the piece of placenta) a piece of ice, which I gently rubbed over the uterine walls, which immediately began to contract. While ordering an assistant to give a drachm of fluid extract of ergot, the vagina was washed out and thoroughly packed with antiseptically prepared pledgets of cotton.

I now had the satisfaction of observing that the hæmorrhage was under control, and turned my attention to the patient, who was about collapsed, entirely unconscious, breathing rapidly, feebly muttering, heart fluttering rapidly and weakly, skin cold and moist, etc. I immediately injected, hypodermically, nitro-glycerine one-hundredth grain and strychnine one-thirtieth grain. Following this, an ounce of Bovinine was injected subcutaneously in three places on the outer aspect of the right thigh. This brought the pulse about normal. There was now given a rectal injection of four ounces Bovinine and half an ounce of whisky, the nurse was instructed to inject subcutaneously thirty minims Bovinine in double the amount of salt water, every half-hour. In just one hour, patient regained conscionsness, was able to speak, and said she felt very comfortable. A tablespoonful of Bovinine in old port wine, every two hours, was continued until the 30th, when the patient was feeling fine, and from this on the dose of Bovinine was a wineglassful every three hours. September 6th, she was sitting up in a chair, and a day or two later was discharged—a complete recuperation within ten days.

VOMITING OF PREGNANCY RELIEVED BY BOVININE INJECTION.

By W. E. Shaw, M.D., Cincinnati.

In a severe case of vomiting in pregnancy, Bovinine was injected rectally every three or four hours for a period of three weeks, the patient taking nothing by mouth, except

occasionally a little water, and being relieved of the vomiting. The rectum was washed out twice daily with salt water before the administration of the enema. The patient gained in weight and strength until able to sit up, whereas she was unable to raise her head off the pillow when treatment was begun.

VOMITING OF PREGNANCY.

By F. D. Wheeler, M.D., Detroit.

Have used the Bovinine treatment in two cases of persistent vomiting in pregnancy with excellent results.

TRAUMATIC COLLAPSE.

Leading New York Hospital: By Dr. T. J. Biggs.

Mike Kelly; age 29; October 15th; in extreme collapse from a stab in the neck, with great loss of blood. The symptoms being extreme, by permission of the attending physician, Dr. H———, a rectal injection of eight ounces of Bovinine and salt water was given every three hours for two days. In fifteen minutes after the first injection, the reaction from collapse was decided, and by the third day the patient began taking Bovinine by the mouth, a teaspoonful in a tablespoonful each of milk and whisky, hourly, for four hours, and then a teaspoonful in milk every two hours; reacted beautifully, and made a recovery so rapid and complete as to be astonishing to those acquainted only with the ordinary treatment in cases of such extreme severity, even where they are pulled through.

TRAUMATIC HÆMORRHAGE.

By Dr. T. J. Biggs.

September 19th, 1894, I was called to see Mr. V———, who had lost a large quantity of blood, the result of several incised wounds received in a fight; one cut had opened the radial artery; he was unconscious, and his life was despaired of. I immediately stimulated the patient, and ten ounces of Bovinine and salt water were injected subcutaneously, four into the right nates, four into the left nates, and two into the right thigh. In twenty-three minutes the patient regained consciousness, with a decided improvement of the pulse and respiration. A rectal injection of Bovinine and salt water was now employed, and

an hour after the patient fell asleep, from which he awoke much improved. Rectal Bovinine injections were continued every three hours; the patient improved daily and was soon out of danger, with the wounds healing kindly.

SUBCUTANEOUS AND RETCAL SUPPLY OF BOVININE "IN EXTREMIS" (TRAUMATIC HÆMORRHAGE).

By Dr. T. J. Biggs.

Mr. B——— came to Dr. K———'s private hospital May 2d, 1894, having an atonied bladder with a rigid neck, for which a copious discharges of blood. After the patient had bled almost perineal section was performed; followed on the second day by constantly for one week, in spite of energetic remedial measures, his recovery was almost despaired of. At this time rectal enemata of Bovinine was resorted to, and as the patient was unable to retain anything by the stomach, he had to depend entirely on this means of nutrition. He made a rapid and uninterrupted recovery, and is at present enjoying good health, having entirely recovered from the shock of the operation and hæmorrhage.

SUSTENTATION UNDER ŒSOPHAGOTOMY FOR LARYNGEAL EPITHELIOMA.

By Dr. E —, New York.

This obviously difficult and dangerous operation on the larynx (the mortality having been hitherto about 75 per cent. of cases) is, fortunately, rare; but, in consequence, the vital indications for treatment have been but inadequately studied and taught. Among the chief elements of danger are: the extreme delicacy of the operation and of the operating field, and the not uncommon necessity for supplementing respiration as well as nutrition through artificial channels—all making a large and continuous drain upon the strength and vitality of the patient under conditions which forbid the possibility of so much as an ordinary supply of nutrition; while a serious interference with respiration impairs the virtue of the blood and every function dependent on it, besides adding much to the distress and exhaustion of the patient. Natural deglutition, with the necessary ptyalin ferment for the due conversion of starch, being impossible during and after the repeated operations, extraordinary demands are made upon the intestinal juices, and

upon the sinking stomach when it requires absolute rest; thus exacting a supply of blood from the system which it is in no condition to afford. Hence the great uncertainty of carrying the patient through the healing process, however successful the operation, and however assiduous the treatment.

CASE.

Archie Manley; American; age 57; December 29th, 1896; epithelioma of larynx. January 1st an operation for the partial removal of growth left so large an area of raw surface in the throat as to inhibit swallowing altogether, and to compel the resort to œsophagotomy for the introduction of nourishment. What should the nourishment be? At the suggestion of a professional brother, it was determined to introduce a direct supply of Bovinine. This exclusively was relied on for sustentation of the patient, with a perfectly satisfactory result, and also after the second operation, for removal of the remainder of the growth.

RECTAL BOVININE SUPPLY IN COLLAPSE FROM POST-PARTUM HÆMORRHAGE.

By Dr. T. J. Biggs, New York.

March 16th, 1896; Ellen Turgis; age 23; collapse from post-partum hæmorrhage. After cleansing the rectum, injected Bovinine in saline solution; immediate improvement; repeated injection after three hours, and then gave a teaspoonful of Bovinine by mouth. Improving rapidly; the enema was finally repeated three hours latter. The dose by mouth was repeated every three hours, and increased to a tablespoonful, until after the 28th, and she left the hospital well.

SUSTENTATION OF A CHILD UNDER LUNG-HEPATIZATION, PYÆMIA, AND OPERATION.

By Dr. T. J. Biggs, New York

Willie Gage, of Brooklyn, E. D., a delicate little fellow of 5 years, was brought to New York Polyclinic by Dr.——, on the 9th of April. 1895. He had been taken on March 2nd with an acute attack of catarrhal pneumonia, and for two weeks past his life had been despaired of, and from the stage of hepatization of both lungs, the case had developed into one of pyæmia. He was brought to the hospital on a

litter, too weak to lift a hand, and reduced to a skeleton, his complexion waxy, showing considerable pus absorbed. The stomach had not been able to retain any nourishment for the previous ten days, and the rapid ebb of life had been but slightly restrained by rectal injections of milk, eggs and whisky. Bovinine was immediately substituted, half a teaspoonful, with sherry wine and a little ice water, every two hours. For forty-eight hours this dosage was retained only about one time in three. The bi-hourly Bovinine was then reduced to ten drops in iced water, with a rectal injection of half an ounce of Bovinine in saline water every three hours. The dose by mouth was now all retained, after the first dose, and the next twenty-four hours showed a slight improvement in the little patient's moribund condition. Continuing this course of treatment for three days longer, the action of the heart had so far improved that it was deemed unnecessary longer to delay operating for the pyæmia.

On the seventh day, accordingly, he was put under etherization, and Dr. B—— removed a section of the fifth and sixth ribs, opened the pleural cavity, and drew from it a full pint of pus. The cavity was washed out with hot Thiersch solution, and then hot salt water, drainage tube inserted, and wound dressed with iodoform gauze, covered with wet bichloride gauze.

The child came out of the operation, anæsthesia and shock, in an extremely exhausted condition, and life hung fluttering by a thread. Ten drops of Bovinine in a teaspoonful of whisky were given at intervals of one hour. By the second day, the pulse and heart gained strength, and animation became visible on the face. But at noon of the third day, the surgeon was suddenly summoned by the nurse, who said the child was dying. He was found almost entirely collapsed. Giving the usual restorative injections, he surrounded the body with bags of hot water, and gave a rectal injection of equal parts of Bovinine and salt water. In two hours the pulse became nearly normal, and the respiration grew steadier, fuller, and slower.

From this time on, Bovinine was injected rectally every three hours; the little patient steadily improved; the heart and respiration assuming normal action; strength and energy increasing; and the elimination of pus and rejuvenation of the system by nourishment showing in the return of

normal color to the face. On the 12th of May the patient was discharged, completely well, lungs in good order, color restored, appetite good, and every way hearty.

TRAUMATIC COLLAPSE.

By Dr. T. J. Biggs.

A boy about 17 years of age was operated on, on the 12th of April, 1895, for the removal of monstrously hypertrophied tonsils and uvula. The operation was fearfully exhausting, and the enormous surface of the wound within the throat entirely prevented swallowing, except a little ice water. On the second day appeared symptoms of collapse, which developed to a most alarming pitch, from the impossibility of taking nourishment. It became necessary to reinforce at once the exhausted blood supply and sinking system by Bovinine injection, as no inert nutritive material could act swiftly enough to save the case. Six ounces of Bovinine were injected per rectum, and again the same evening. The symptoms were at once relieved. The Bovinine per rectum was continued three times a day for a week, by which time the throat wound was covered with mucous, and he could swallow it by the mouth. April 28th, only seventeen days from the operation, the wound is nearly well; he is 8 pounds heavier than before; his color and general appearance better than ever, and he says he "feels first rate."

BOVININE IN TRAUMATIC EXHAUSTION.

By Charles L. Bonifield, M. D., Cincinnati.

In the case of a girl, 14 years of age, from whom a large intraligamentous cyst, with extensive adhesions to the liver and stomach, was removed: vomiting commenced on the third day while the patient was taking milk and lime water alternately with whisky and hot water. The stomach was rested for twelve hours, after which Bovinine in water was given. The vomiting ceased and did not recur. The ingestion of Bovinine is not attended by the formation of gas, which is a consideration of importance in conditions where tympanitis is a troublesome symptom.

BOVININE IN HYSTERO-EPILEPTIC CATALEPSY.

By Dr. T. J. Biggs, New York.

Anton——; a German; 26 years of age; was suddenly seized with a fit of hystero-epilepsy, and when seen had already lain in a comatose, semi-cataleptic state for forty-eight hours, without any nourishment whatever. The jaw being firmly set and immovable, a tube was introduced through the nose down into the œsophagus, and through this Bovinine was forced every three hours, while a rectal injection of Bovinine was given twice a day. The first injection was not retained, but strengthened the organ sufficiently to retain all the subsequent ones. General improvement commenced immediately. At the end of the fourth day he regained consciousness, the cataleptic symptoms ceased, and he has since been doing well.

DEPARTMENT OF GYNÆCOLOGY.

Among the many new remedial procedures, saving members, and replacing or greatly mitigating surgery, which the introduction of Bovinine now renders practicable, none, thus far, more forcibly demand the attention of the profession than the

TOPICAL HEALING OF OVARIAN ABSCESS

(in place of extirpating the ovary, as heretofore necessary in such extreme cases) which is described in the following clinic. Considering the self-respect of woman—which in this case, as in others, deliberately preferred death to sexual dismemberment—and especially considering the dangers, and the undefinable injurious consequences, of such dismemberment, it will be admitted that the new process, conditioned on the Bovinine supply to the antiseptically scoured cavity of an ovarian abscess, advances the healing art by one of its most remarkable and beneficient stages. "Necessity is the mother of invention," and thus it was in the present discovery, for great as was Dr. Biggs's confidence in the constantly realized virtues of Bovinine, it will be observed that he dared not trust any means short of ovarectomy, in the case here given, but was literally compelled by the woman to risk evacuating and healing the diseased ovary, or see her die on his hands.

HOPELESSLY DISEASED OVARIES.

By Dr. T. J. Biggs, Sound View Hospital.

Case of Miss L—— R——, Crotona, N. Y.; admitted to Sound View Hospital, November 25th, 1897. Salpingitis; Ovarian Abscess; Ulcerative Endometritis and Proctitis. The condition of the left ovary, per external examination, was so threatening that its removal was considered necessary; but the patient persistently refused to submit to it, declaring that she would die rather than be unsexed. The diagnosis was more than confirmed, later, in the progress of the disease. The organ was found to be, in fact, mainly an excavated shell, filled with pus, already diffusing septicæmia with its most menacing symptoms, and threatening an immediate rupture of its attenuated wall, to pour the immedicable poison into the peritoneal cavity. All the instruments of surgery could do nothing for it but to cut it out. To open and curette the abscess would have been but

destructive and hopeless violence. To have sent in mere peroxide of hydrogen or other simple antiseptic, instead of the curette, would have been useless and also destructive. But the destroyer and the saviour met together—the peroxide and Bovinine—in league and mutual influence at once to destroy the sepsis and conserve the organ. This sounds romantic, but the metaphor represents a fact of scientific experiment nevertheless. Death or dismemberment was the inexorable sentence of yesterday's surgery upon this woman. Not either; but healing and wholeness of womanhood, at once, was the message to her of to-day's surgery as advanced by the knowledge of hydrogen peroxide on Bovinine !

It seemed clear that the organ could not be saved, unless some novel way of reaching it with topical treatment could be devised that might possibly be successful. But being reluctant to experiment in this new field, I again strongly advised removal. The patient again positively refused, at all hazards, to have any such operation performed. Meanwhile, the condition of the ovary, with severe recurrent elevation of temperature, often caused hours of intense effort and anxiety to avert a sudden catastrophe. So the case see-sawed between intervals of danger and relief, with great and increasing pain, until by January 26th, 1898, the condition of the ovary became so serious that a rupture of the abscess into the peritoneal of the cavity was hourly imminent; while nothing in the line of precedent could be done to save the patient, owing to her determined rejection of operation. As a last effort, I now told the patient that I could take no further responsibility in her case unless she would submit it to my control. Nevertheless, she still stubbornly refused to allow her ovary to be removed. I then consulted with her father on a compromise course, which would test the practicability of topical treatment for healing. This was to do a laparotomy for the purpose of bringing the ovary to the surface of the abdominal wound, where it could be drained, depurated with the bovinine-peroxide reaction, and topically nourished with the Bovinine. This was agreed to, and on the 27th, under A C E mixture, laparotomy was performed. The ovary was found thoroughly diseased and filled with pus, as expected. The broad ligament, however, was in a normal condition. except considerable hyperæmia.

The ovary was now brought forward and stitched to the abdominal wound, incised, drained, scoured of septic matter by peroxide-Bovinine, washed out with Thiersch solution, and was then gently packed with iodoform-Bovinine gauze, the surrounding tissues were protected with iodoform gauze, and the wound was covered with a wet Thiersch dressing. This procedure was repeated every day to February 9th, when no further evidence of pus could be perceived, and the ovary had taken on a healthy appearance. Meanwhile, I had made a plaster cast of a funnel shape, or hollow cone, the large end of which was applied to cover and protect the wound of the ovary, and a strip of gauze, saturated with Bovinine, was passed into the small end, excluding air, yet so that the liquid should drip into the wound. As often as necessary, more Bovinine was poured on the gauze to keep up the dripping supply. At suitable intervals the cone was removed, and the depuration of the wound was repeated. This alternate cleansing and feeding was constantly continued until March 2d, when the ovary was entirely filled out with new normal tissue, and practically restored to health.

March 3d, the edges of the abdominal wound were freshened; the ovary was released from its attachment thereto, and dropped back into its place; the wound was closed with continuous silk sutures, and dressed. March 14th, the wound was entirely healed. The patient was, of course, still weak; but, considering all she had gone through, the sustentation of her system by Bovinine, continued all through, was a wonder for any who have not become accustomed to witnessing it.

On the 11th of April this case was discharged, absolutely well—a new woman, and a whole woman; 6½ pounds heavier than she had ever been before in her life.

ULCERATIVE PROCTITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Complicating the case of Miss L—— R——, there had been a severe ulcerative proctitis of four years' standing. This condition had been under treatment at five different New York hospitals and in the hands of five private physicians besides, but no positive results were obtained, beyond a partial relief from pain for short periods only.

Examination of rectum now showed that the mucous membrane was tremendously congested, with about twenty points of ulceration, scattered irregularly; the largest on the posterior wall. Anteriorly, one point had almost penetrated into the vagina; the mucous membrane of the vagina being the only part of the dividing wall intact. The sphincters were very tight. Treatment: After thoroughly dilating the sphincters, the rectum was depurated with Bovinine-peroxide reaction and Thiersch irrigation. The points of ulceration, with the exception of the one in the anterior wall, between the rectum and vagina, were touched up with the small point of a Paquelin cautery. My reason for using the Paquelin cautery in this case, instead of pyrozone or nitrate of silver, was that as the edges of ulcers were hard, hypertrophied masses, with no absorptive property, their destruction was necessary to prepare proper surfaces for the reception of the healing Bovinine. The anterior ulcer was gently, but thoroughly scraped, and its edges freshened and brought in apposition by a continuous catgut suture. The rectum was now washed out again with Thiersch, and gently packed with gauze, saturated with iodoform Bovinine. This was removed later, and the rectum cleansed as before, and a large gelatin capsule, filled with Bovinine pure, was inserted. These capsules were inserted three times daily, and the rectum depurated every morning as at first, for one week. At the end of this time, the ulcers, laterally, and the one sewn up anteriorly, had entirely healed. Posteriorly, they had been reduced to about one-half their original size, and presented healthy granulating surfaces. The Bovinine gelatin capsules were now inserted night and morning, with morning cleansing, as before. At the end of sixteen days from the beginning of the treatment, the ulcers were found entirely healed, and the rectum in its normal condition.

CASE OF SALPINGITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Miss B——, New York City; age 28; December 30th, 1898; salpingitis, right side; in extreme pain and greatly run down. Her secretions were regulated, and on December 31st, under anæsthesia, the womb was well opened up and a cystoscopic examination showed pus exuding from

the right tube. There was also present some endometritis. The tube was first catheterised and depurated with Bovinine and peroxide. Then the womb was cleansed in a similar manner, and, following this, was pack with iodoform-Bovinine gauze. At the end of the twenty-four hours, this packing was removed, the tube depurated as before, and the womb repacked with iodoform-Bovinine gauze. This procedure was continued up to January 20th; at which time it was found that the tube was in a healthy condition, but slight traces of the endometritis remaining. The uterine packing was now discontinued, and intra-uterine injections of Bovinine were employed three times a day. January 29th, the patient was discharged. Coincident with the above described treatment, the patient had been given a tablespoonful of Bovinine in milk every three hours.

FIVE YEARS OF ENDOMETRITIS ENDED IN THREE WEEKS.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. T——, Sound Beach, Conn.; age 36; February 28th, 1899; endometritis; had suffered severely for five years, under various physicians, and twice curetted; result, a very aggravated chronic condition; would not allow an operation, and I therefore determined to do the best I could for her under the circumstances. I injected Bovinine into the womb, followed by hydrozone. After chemical reaction had ceased, product was washed out with Thiersch solution, and the womb was packed with iodoform-Bovinine gauze; all repeated twice in twenty-four hours, up to March 10th. The womb had then resumed its normal size, the discharge had ceased, and the patient was relieved of all pain. In order to thoroughly rejuvenate the mucous membrane, I determined to inject into the uterus Bovinine pure, twice every twenty-four hours; continued until March 18th, when the patient was discharged.

CHRONIC SALPINGITIS. CONDEMNED OVARY SAVED.

By Dr. T. J. Biggs Sound View Hospital.

Mrs. McC——, Stamford, Conn.; age 32; admitted April 11th, 1898; salpingitis of left ovary. Had been under the care of a leading physician, who advised her to have the ovary removed. This was absolutely refused, and I was called in consultation. I now did not believe that the re-

moval was absolutely necessary. This pleased the patient so much that she decided to enter the hospital for treatment. Digital examination revealed a soggy mass posteriorly on the left side, the womb considerably retroverted, and severe endometritis. I put the patient on a teaspoonful of Bovinine in old port wine, every two hours, with a hot vaginal douche of plain sterilized water, continued to the 27th, when the pain, which had been previously very severe, was entirely relieved. On the 28th, after etherizing the patient, I thoroughly curetted the womb, and after depuration with the Bovinine-peroxide reaction, packed it with bi-sterilized gauze saturated with iodoform-Bovinine. Depuration and packing was repeated until May 5th, when tampons saturated with Bovinine were applied instead, and the Bovinine by mouth, was increased to a wine-glassful in grape juice every four hours. Patient now felt, as she expressed it, well and happy, aside from the weakness resulting from former sufferings. The Bovinine tampons continued to be applied until the 20th, when the womb was found in a normal condition, there was no tenderness over the ovary, and the patient's general condition was better than it had been for years. A Thiersch douche was now employed at bedtime, up to the 28th. May 29th, she was discharged, and delighted that her ovary had been saved.

ENDOMETRITIS AND THREATENED OVARIAN ABSCESS WITH ULCERATIVE CYSTITIS.

By Dr T. J. Biggs, Sound View Hospital.

Mrs. H——, Sound Beach, Conn.; age 47; August 20th, 1898; had been sick five months; treated by six different physicians, growing steadily worse, and had lost 24 pounds of flesh; pain in bladder so severe that she could not sit still for an instant.

Bladder was now washed out with warm Bovinine and salt solution every three hours, and in forty-eight hours she was entirely relieved of pain, except a soreness in the womb from the endometritis.

Examination now revealed the right ovary very much inflamed, and I began to fear an abscess. The mouth of womb was opened and a tablespoonful of Bovinine was

injected, followed by a tablespoonful of equal parts peroxide of hydrogen and water. The reaction effervescence of the Bovinine and peroxide within the inflamed womb caused some pain for the moment. As soon as the reaction was completed, the product was washed out with Thiersch, and a drachm of Bovinine pure was injected, making an end of pain, as usual. The bladder was next washed out with plain hot Thiersch, and two drachms Bovinine and salt solution were injected. These procedures, in both womb and bladder, were repeated three times a day, to the middle of September, and, besides the local treatment, a tablespoonful of Bovinine was given every three hours.

September 15th, the endometritis had entirely subsided, the inflamed conditions of ovary and bladder were virtually healed. But some slight points of ulceration remaining in bladder, Bovinine and salt water was kept up until October 1st, when its condition was found normal. October 3rd, patient was discharged, having gained 18 pounds in flesh.

OPERATION FOR OVARIAN CYST AND EXTREME ULCERATIVE PROCTITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. H——, Sound Beach, Conn.; age 47; August 25th, 1898; a large cyst of left ovary, and one of the worst cases of ulcerative proctitis I have ever seen, the whole rectum being one mass of continuous ulceration. The patient suffered so intensely in defecation that she used opiates to bind the bowels, and sometimes went as much as eight days without a movement, after which she had to take a high injection of soapsuds and water to bring away the accumulation. The condition was of eight years' standing, under treatment by ten different physicians, with four operations, but had steadily increased in severity; for the obvious reason, that the effect of medical and surgical treatment is always limited by the blood power of the patient to follow it up, and where this element is inadequate, the result is the too common one of utter failure.

August 26th, under chloroform, the rectum was thoroughly dilated, depurated by the Bovinine-peroxide reaction, washed out with Thiersch, and all the tract of ulceration, which nearly covered the entire surface of the rectum, was touched up with 25 per cent. pyrozone, with

the exception of three points, which were treated with the electric cautery. The speculum was then removed, and pure Bovine was injected, confining it by a pad covered with sheet rubber over the anus, and retained by a T-bandage. Patient reacted nicely from the chloroform, and almost the first word she uttered was, "What have you done for me? I am in no pain, the first time in years?"

For the first twenty-four hours, Bovinine was injected hourly; after that, gelatin capsules of Bovinine were introduced every two hours. By September 1st, the patient's condition was so vastly improved that she was allowed to get up and take exercise, and the Bovinine was applied but three times a day. September 12th, the rectal condition was entirely healed, and the general health so much improved that the case was ready for the

SECOND OPERATION.

for ovarian cyst, which was peformed the same day. An incision four and a-half inches long was made through the median line, and search in the cavity revealed a cyst about the size of an Osage orange, with a twisted pedicle. This was removed, and the stump treated with iodoform-Bovinine, returned to the cavity, a glass drainage tube inserted, and the peritoneum and outside wound united by quill sutures; the whole being dressed with iodoform-Bovinine gauze. Patient's temperature was carefully watched, and there being no rise, the dressing was not disturbed until September 15th. At this time, on removing the dressing, the wound was found in a perfectly healthy condition, with not a particle of discharge from the cavity. Wound was now gently cleansed with the Bovinine-hydrozone reaction and Thiersch washing, and dressed as before with iodoform-Bovinine gauze. At the next dressing, September 17th, the drainage tube was removed, the wound was entirely closed and dressed with Bovinine pure, which was changed twice in twenty-four hours, up to October 14th; when the wound was entirely healed, leaving a strong, healthy, pink cicatrix. Patient having suffered so much in the last few years, was considerably run down, so that it was deemed advisable to keep her at the hospital on Bovinine a while longer, increased to a tablespoonful every three hours, until final discharge, October 28th.

RECTO-VAGINAL FISTULA AND RECTAL ULCERS. DOUBLE OPERATION.

By Dr. T. J. Biggs, Sound View Hospital.

Miss W———, Glenbrook, Conn.; age 34; April 10th, 1898. An extensive operation had left her much exhausted, without other result except an increase of the pathological condition. She said the fistula had been operated on no less than six times, three times per vaginam and twice per rectum; but no line of union had once been obtained. Examination revealed an opening of the size of a quarter dollar, with edges ulcerated and very sensitive, causing great pain at every defecation, and passing a large part of the fæces into the vagina, which it was necessary to douche out on each occasion. Complicating this condition were found five points of ulceration, three anterior and two left lateral. I had her put to bed, regulating secretions, and put her on Bovinine, a wineglassful every three hours. Patient began to pick up immediately, and on the 25th, her condition being favorable, I performed the following operation: After thorough depuration of the vagina with Bovinine-peroxide reaction and Thiersch irrigation, the rectum was fully dilated, the edges of the fistula were freshened by careful dissection of margin, it was depurated with peroxide on Bovinine, and a tampon was inserted well up in the rectum, to prevent fæces coming down on the site of operation. The speculum was then removed, and the vagina was thoroughly dilated in turn, the vaginal edges of fistula were freshened, as had been done at its rectal extremity, and the surfaces also treated with the Bovinine-peroxide reaction. I now used continuous kangaroo-tendon sutures, going only through the sub-mucous coat, but bringing the vaginal edges of the fistula into close apposition. The vagina was next cleaned with Thiersch, an iodoform-Bovinine tampon was inserted, and the speculum removed. The rectum was now dilated again, and continuous silk sutures were employed to close up the rectal end of the fistula. The tampon which had been previously inserted was removed, the rectum washed out with Thiersch, and the points of ulceration were touched up with 25 per cent. pyrozone. A strip of bi-sterilized gauze, saturated with iodoform-Bovinine, was gently packed in, and the speculum removed. The nurse was ordered to give an opium and tan-

nin pill twice a day, to prevent movement of the bowels. Patient reacted nicely from the ether, and suffered little or no pain. At the end of twenty-four hours, both packings were removed, and the rectum and vagina thoroughly cleansed. Examination, both rectal and vaginal, revealed the stitches in excellent position, and the surfaces also doing nicely. I now introduced Bovinine capsules rectally, and a cotton tampon saturated with iodoform-Bovinine in vagina. These were changed twice a day, up to the 1st of May, when examination revealed lines of healing almost perfect. Nurse was now ordered to give Bovinine injections three times a day, in both rectum and vagina; preceding each injection with the Bovinine-peroxide depuration and Thiersch irrigation. On the 7th, the vaginal end of fistula had completely united, and the kangaroo sutures were almost all absorbed; the remaining portions being removed with thumb forceps. Rectally, while the line of union was perfect, yet complete organization of scar had not taken place, and, consequently, the stitches were not touched. The ulcers were all healed except one, which had been reduced by half, and the healing of it was favorably progressing. Vaginal injections were now discontinued, and only rectal were employed, three times a day. By the 20th, the edges of the rectal end of sinus were firmly adherent together and completely healed. The silk sutures were then removed. The remaining rectal ulcer was now reduced to a point in size of a pin head. Therefore, daily applications of pure Bovinine were made direct to the ulcer by cotton carrier until the 26th, when it was entirely healed. Patient was discharged, cured, May 27th, 1898.

Remarks on this case: The operation here employed is a modified Sims—the one that made that distinguished gynæcologist almost famous; his idea being that of sewing up both the rectal and vaginal sides of the fistula, in which he used silk mostly. My reason for using silk rectally was that the complete absorption of animal sutures might be interfered with by fæces. On the other hand, at the vaginal side, there being no unhealthy discharge of any kind, I thought it better to use kangaroo, as it would not have to be disturbed.

Sims met with failure in 35 per cent. of all his cases, in spite of his improved mode of stitching. Other surgeons,

who employed stitching on only one side, have averaged but 8 per cent. of failures. I deem my method superior to all of them, for two reasons: (1) the topical nutrition; (2) the kangaroo suture on vaginal and silk on rectal side.

RECTAL FISSURES AND RECTO-VAGINAL FISTULA.

By Dr. T. J. Biggs, Sound View Hospital.

Marie Udsen; Swede; age 26; December 21st, 1897; four fissures of rectum and recto-vaginal fistula. On the 23d, after thoroughly cleansing out vagina and rectum, a plastic operation was performed to close up the fistulous tract. A flap from the posterior wall of the vagina was carefully dissected up and stitched over the opening of the fistula, the walls of the canal having been previously destroyed by actual cautery. The stitches used were of the patient's hair, which had been thoroughly sterilized. A double tampon, according to the Stafford method, was used to keep the womb well forward, so as not to rest on the site of operation. The bowels were kept constipated by drugs to prevent movement. Both rectum and vagina were thoroughly cleansed out by the Bovinine-peroxide reaction, followed by Thiersch irrigation; after which pure Bovinine was sprayed in on the side of the womb. This treatment was repeated several times daily until January 6th, when the wound was entirely healed, the operation having given a perfect result.

Treatment of the fissures had been taken up December 26th. The anal fissures were made insensible by applying a 10 per cent. solution of cocaine. After thorough dilatation of the anus and rectum by thumb method, they were cleansed by the Bovinine-peroxide process with Thiersch, and Bovinine pure was then applied in saturated gauze. This was done twice a day until January 4th, 1898, when the fissures were entirely healed. January 12th, the patient was discharged in complete repair. She had taken internally a drachm of Bovinine in milk every two hours during the whole period of her stay.

ENDOMETRITIS.

By Dr. T. J Biggs, Sound View Hospital.

Mrs. R——, Glenbrook, Conn.; age 30; July 20th. Patient had been suffering for five years with endometritis, result was that although three years married she had never con-

ceived. She was thoroughly run down, and had a profuse discharge of leucorrhœa. Put to bed, and treated with a tablespoonful of Bovinine every three hours. On the 22nd, the womb was depurated with peroxide-on-Bovinine, washed out with Thiersch, and packed with iodoform-Bovinine gauze. This was repeated three times a day until August 12th, and after that twice a day, and the Bovinine was increased to a wine-glassful in milk every three hours. August 30th the patient was discharged, having gained 6½ pounds; discharge entirely ceased, womb well, and general condition greatly improved.

UTERINE ULCERS AND LACERATION. OLD PERINEAL TEAR.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. C—— L——, New York; age 24; September 10th, 1897. Following childbirth, a perineal laceration, to rectum; also lacerated cervix and severe ulcerative endometritis, with copious leucorrhœa. A case of two and a-half years' standing, during which many treatments had been employed, such as tamponing, local applications, douches and injections.

The lacerated perineal tissues were now so retracted and atrophied that it was impossible to bring the edges into apposition; therefore it was out of the question to freshen the edges and unite them by stitching, and a plastic operation was necessary. The laceration of cervix was of so long standing that the edges had partially granulated over, and in part were in a state of ulceration. The leucorrhœa was one of the most copious and foul-smelling discharges I ever saw.

The patient was in an almost collapsed state when she entered the hospital, and was, therefore, put on preparatory treatment for two weeks; regulation of bowels, Bovinine, and a light diet. On the 24th, under chloroform, the womb was brought down, well opened, and thoroughly curetted, large quantities of unhealthy granulations being removed. Bovinine and peroxide of hydrogen were then injected into the uterine cavity, and after the chemical reaction ceased, the cavity was thoroughly washed out with Tiersch solution, and the womb was packed with bi-sterilized gauze soaked in iodoform-Bovinine.

The vagina was then thoroughly cleansed with Bovinine and peroxide, followed by Thiersch solution, preparatory to the second operation. After examination, I determined to trim up the cicatricial and ulcerating edges of the cervical tear, and these were brought together with four silver-wire sutures. Just back of the womb, within the *cul de sac* of Douglas, was discovered a polypus about the size of a small fig, which was removed. The vagina was then thoroughly irrigated with Thiersch solution, and packed with bi-sterilized gauze which had been saturated with Bovinine and well wrung out; a napkin and a T-bandage being applied to keep this in place. These operations were attended with the usual stimulation by whisky and strychnine, and from the 27th to the 30th a camphor enema.

The vaginal packing was removed in twenty-four hours, and the vagina was washed out as before and repacked with iodoform gauze, and this packing was changed with the same process every day for five days. At the end of this time, the uterine packing was gently removed, the uterus was washed out with Thiersch solution, and the vagina was packed again with Bovinine gauze as at first. This packing was repeated until the seventh day, washing out the womb daily with a saturated solution of boracic acid, and then discontinued; it having been observed that the point where the polypus had been removed had healed. The nurse was now ordered to give injections in the vagina of one ounce Bovinine, with the hips well elevated, three times a day, the object being to stimulate and nourish this badly-depleted and abused membrane. In ten days after the operation, the silver stitches were removed; the process of healing being found complete, and the line of union perfect. There being considerable retroversion of the womb, Bovinine tamponing was employed.

On October 11th, 1897, the condition of the parts above having now become normal, and the patient's physical condition excellent, I determined to complete my surgical work for the patient without further delay, and after administering chloroform, began the operation on the perinæum. The edges of the great tear being so retracted and atrophied, as before stated, it was necessary to dissect up flaps on either side to a distance of two inches, in order

to bring the parts comfortably and safely into apposition. This having been carefully done, the edges were brought together by two rows of sutures: one, of four deep sutures, which brought the membranous and muscular tissues in apposition; then six superficial sutures, which completely closed the wound. For the deep sutures, silkworm gut was used, and for the superficial, sterilized cat gut. The wound having been thoroughly cleansed with Thiersch solution and dried, the superficial line of sutures were painted over with iodoform-Bovinine, and covered with flexible collodion. For the next five days this was not disturbed further than to examine whether all was going on right, and then the superficial sutures were entirely removed. The superficial line of incision had healed; but the deep sutures were left in for five days longer, when two were removed; two days later a third; and two days later still, the fourth. During this period, between the fifth day and the removal of the last deep stitch, the part was thoroughly washed twice a day with Thiersch solution, carefully dried, and Bovinine was sprayed on. Internal nourishment of Bovinine, etc., was, of course, continued throughout.

On November 6th, the process of repair was found to be completed, and the patient was allowed to dress and go about. She remained at the institution for two or three weeks, and continued regimen until confirmed convalescence.

ULCERATION OF CERVIX.

By Dr. S———, N. Y.

Lillie Bentz; age 30; August 9th, 1897; ulceration of cervix, taking in almost the entire lip of the cervix on the right side, and extending up on the external surface; of three years standing, and had resisted many vigorous treatments. Topical nutrition was applied by tampons of iodoform-Bovinine, after suitable preparatory treatment, and repeated every six hours for a week; thenceforward, twice a day. August 22nd, case was discharged.

ULCERATION OF WOMB AND CERVIX.

By Dr. T. J. Biggs, Sound View Hospital.

Miss C—— G——, New York; age 24; September 10th, 1897: severe ulcerative endometritis, accompanied by profuse leucorrhœa of the most fetid character. On the cervix, posteriorly, grew a polypus as large as an English

walnut. The condition was of two years' standing, during which time it had been under constant treatment by a succession of physicians, had been twice curetted, but had gradually grown worse. There had been no menses for the last six months; but when they were due, she suffered severe neuralgic pain, confined to the ovaries. As she was in a very run-down condition, she was put on a regimen of Bovinine every two hours, and was put to bed and hot douches of Thiersch, four quarts, were ordered night and morning. The following day, a Bovinine tampon was applied well back in the *cul de sac* of Douglas, as there was a slight misplacement. On the 16th, the polypus was removed by torsion, the surface exposed was touched up with 25 per cent. pyrozone, and an iodoform-Bovinine tampon was applied. (That surface was completely healed by the 26th.) On the 35th I thoroughly curetted the uterus and cervix; removing, together with the granulations, two smaller polypi of the size of hazel nuts. The Bovinine-peroxide reaction was then applied by injection into the uterus, and the product washed out as usual with Thiersch solution. Narrow strips of gauze were dipped in Bovinine, wrung out, and packed into the uterine cavity; a Bovinine tampon was inserted, and a napkin and T-bandage applied. This treatment and dressing were repeated on the 27th and 28th. About 4 p. m. on September 30th, menstruation appeared fully and freely, without any pain whatever, and lasted until October 3rd. On the 4th, examination found the mucous membrane lining the vagina thoroughly anæmic, and therefore Bovinine tampons were applied daily until the 12th, and every other day thereafter until November 1st.

It should have been mentioned that on September 23rd the initial lesion of syphilis appeared on the right labium major, ran on to its full developement, and on October 14th secondary symptoms began to appear; eruption, falling out of hair, sore throat, and pain in bones. For this condition, besides the Bovinine, one-fourth of a grain of mercury biniodide had been given three times a day; this being continued until November 22nd, when the eruption was fading and the general condition was good.

November 1st, the Bovinine had been increased to a tablespoonful every three hours. On the 14th, the Bovin-

ine tamponing was changed from every other day to twice a week. The condition of the uterus and cervix was now entirely well; the mucous membrane of the vagina was much improved, but was still decidedly anæmic; consequently the womb and vagina were thoroughly sprayed with Bovinine every night, until December 10th. After this date a tampon was applied daily, of boroglycerol, glycerine and alum, when the patient was allowed to go out walking, in order to support the womb and to contract the surrounding tissues, whichhad become more or less relaxed. December 15th the eruption had entirely disappeared, as well as all other syphilitic symptoms. The patient was, however, impressed with the necessity of keeping up anti-syphilitic treatment for at least two years. December 22nd patient was discharged.

UTERINE ULCERATION OF MORE THAN A YEAR.

By Dr. T. J Biggs, Sound View Hospital.

Miss W——, Long Island City, N. Y.; dancer; March 29th, 1898; large ulcer covering entire surface of external os; suffered great and continual pain, particularly when on her feet, insomuch that she had been obliged to give up her occupation. Examination revealed a deep, burrowing ulcer, exuding a large quantity of muco-purulent pus. She was at once put on a teaspoonful of Bovinine in milk every two hours. The ulcer was next thoroughly cleansed of all effete matter by the Bovinine-peroxide reaction, washed out with Thiersch; touched up with 25 per cent. pyrozone; and pure Bovinine then applied by means of three small tampons, the process being repeated twice a day. From and after the second of these changes, the patient was entirely relieved (the usual effect) of the severe pain suffered until this time, and expressed herself most delightfully surprised; having been under all the various treatments in institution and private practice for over a year, during which she had scarcely been free from the pain and soreness for a minute. The continued effect was almost as magical; by the fourth application all discharge ceased, and the entire surface of the wound had become covered with healthy granulation. On the 28th of March the patient was discharged, the ulcer being entirely healed, and leaving no evidence of a cicatrix.

CERVICAL ULCER OF FOUR YEARS' STANDING

By Dr. T. J. Biggs, New York.

Lizzie Murphy; age 32; November 10th, 1896; ulcer of cervix, of four years' standing; had refused operation; had been treated at various regular institutions without result. November 12th, the ulcer was gently curetted, and dressed with sterilized gauze, saturated in Bovinine. This was applied once in four hours for a week; thenceforward, twice a day, until December 6th, when the patient was discharged, ulcer perfectly healed.

CERVICAL ULCER, TWO AND A-HALF YEARS' OLD

By Dr. Charles L. Bonifield, Cincinnati, Ohio.

Agnes Riddle; age 29; September 3d, 1896; very deep ulcer of the cervix, which had resisted all the old treatments for two and a-half years. Cleaned it out and applied Bovinine by tampon four times a day. Twenty-six days later, September 29th, 1896, the ulcer had entirely healed, leaving only a slight trace of its previous existence.

CARUNCLE OF URETHRA, ULCERATION.

By Dr. T. J. Biggs, Sound View Hospital.

Marie B——, New Canaan, Conn.; age 45; May 3d, 1898. Six months previously, having suffered much distress during urination, followed by excruciating pain after the bladder was emptied, she had been told that she had cancer of the meatus, and, under etherization, a growth was partially removed. She now experienced greater pain than ever, which was continuous. Another physician put her through a course of treatment, but she steadily grew worse.

On May 3d, 1898, she came under my care. Examination revealed a large-sized caruncle, involving the entire circumference of the meatus, and from a-half to three-quarters of the anterior portion of the urethra. Laterally, on the right side, was a very hard and painful cicatrix, resulting from the former operation. After a few days of preparatory treatment and regulating the secretions with a teaspoonful of Bovinine every two hours, on May 6th she was chloroformed, and the growth and scar were both carefully dissected out. The urethra was now packed gently with a strip of gauze soaked in Bovinine. Incidentally, it may be mentioned that the urethra was

thoroughly dilated, so that incontinence of urine might result for a few days, to prevent contraction of the urethra down to the denuded surface of the wound. At the end of twelve hours the packing was removed, and urethra and bladder were washed out. A glass tube, prepared with many perforations all over its circumference, was now inserted, and held in place by an improvised harness; the object being to not only thoroughly drain the bladder, thereby giving the muscles rest and keeping the denuded surfaces apart, but also at the same time provide for feeding the denuded surfaces by dropping in and diffusing Bovinine. This tube was allowed to remain in until the 10th, when it was removed, and the urethra was found to be in a healthy granulating condition. Bovinine pure was now injected with a glass syringe every two hours, and urine drawn three times a day, until the 16th, when the surfaces were almost entirely healed, the normal power of the urethra was restored, and urine was voided without any pain; the only part not healed being the site of the old scar made by the former operation. May 21st, this also being healed, the patient was discharged.

UTERINE ULCERATION AND ANÆMIA.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. K—— J——; Swede; New Canaan, Conn.; age 34; February 8th; ulcerative tubercular endometritis and tubercular vaginitis; also well-defined anæmia; but half a normal count of red cells, and but 40 per cent. of hæmaglobin. Given Bovinine every three hours. Vagina and uterus cleared out by the Bovinine-peroxide reaction, and the latter was packed with iodoform-Bovinine in gauze; this twice daily until the 25th, and thenceforward Bovinine tampons were employed posteriorly and changed twice a day. By March 3d, the blood was already almost normal, and the womb and vagina restored to a normal condition.

ULCERATIVE EDOMETRITIS AND ANÆMIA.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. Rebecca R——, New York; age 28; June 26th, 1898. Patient had been treated for present condition three years, and had spent all her patrimony of $4,000 in this way, and twice suffered curettement, without any benefit whatever, outside of some transient relief. When ad-

mitted, she was reduced to 92 pounds, thin, emaciated, waxy of complexion, and so weak that I decided to do nothing until she could be built up a little by Bovinine. Microscopical examination of blood showed hæmaglobin very much reduced, the red corpuscles not over 1,100,000 per c. c., and the white greatly in excess. Examination of womb revealed extensive ulcerative endometritis, for which curettement seemed necessary; but this she positively refused to submit to, having undergone it twice without any benefit. Finding it impossible to shake her resolution, I consented, under protest, to do the best I could for her without curettement; which, thanks to the mild, but powerful depurator, the Bovinine-peroxide reaction, I was able to dispense with in a case which otherwise could not be (as it had not been) treated with success.

Daily, the mouth of the womb was thoroughly opened, and the interior ulceration was depurated with peroxide-on-Bovinine, washed out with Thiersch, and then gently packed with iodoform-Bovinine gauze. Patient was given a tablespoonful of Bovinine every three hours. This, with the womb treatment, was continued to August 1st, when the Bovinine was increased to a wineglassful; and the womb had improved so much that its treatment was continued only once a day. August 30th, patient was discharged, having gained 12 pounds, a splendid color, good appetite, sound sleep, and a feeling of strength; with red corpuscles 2,900,000, hæmaglobin almost normal, and white ditto; womb reduced to natural size, hard, in good position, no longer painful, discharge entirely ended, and a delighted state of mind.

BOVININE IN ERYSIPELAS.

By Dr. T. J. Biggs.

Erysipelas is a diffused inflammation affecting the skin and areolar tissue; due to the streptococcus of erysipelas.

Symptoms.—Continuous erysipelas is known by redness of the skin, which disappears momentarily on pressure; the swelling is puffy, with a distinct edge; the pain is smarting, burning and stinging. The redness is of a vivid scarlet hue, with a tendency to become yellowish if there is much debility. The nearest lymphatic glands are always swollen and tender.

In phlegmonous erysipelas, the redness is deeper; sometimes dusky and purple; the swelling is greater, and is hard and tense; or it may be more doughy and pitting on pressure; the pain is not only burning, but throbbing. The disease begins with shivering, headache, pain in back, nausea, vomiting, followed by fever, which is of a low type, especially if the patient be old or weak, or if it be of hospital origin. Diarrhœa and perspiration may be present from the outset, particularly if the case be asthenic in character.

The cutaneous variety may terminate in resolution, with desquamation and slight œdema; or may subside, leaving bullæ or vesicles remaining under the cuticle, which dry into scabs and peel off, leaving a healthy cutis, and sometimes superficial ulcerations. It may terminate by the appearance of small abscesses. Ordinary duration is from seven to fourteen days.

The phlegmonous erysipelas often leads to diffuse suppuration of the areolar tissue, when the swelling is flaccid and quaggy; patches of skin become purple and slough; the intermuscular tissue and fasciæ may suffer in the same way, and even if the patient escape with life, the limb may remain permanently useless. Phlegmonous erysipelas is more dangerous than the cutaneous variety; the disease is particularly to be dreaded when it attacks the scalp. In old persons, the intemperate, and the very young, the prognosis is very grave. An epidemic of this disease is always more destructive to life than when it occurs sporadically.

Traumatic erysipelas is always a cause for grave concern. The tendency to relapse, after the disease has disappeared from the part originally affected, is very remarkable.

ERYSIPELAS, GANGRENE, ETC.,

By Samuel C. Henszey, M. D., Philadelphia.

Some months ago I had a case at an institution of which I am physician in chief, a lady weighing 300 pounds. Erysipelas had set in on her leg just above the ankle, and extended up the leg as far as the knee; it was a very serious case. In the course of a few days ulceration set in, and it was a truly horrible sight; the odor was terrible—in fact, it was so offensive that a physician visiting the institution remarked that he would be afraid that something serious might result to some of the inmates. In a few days gangrene with all its fury set in, and surrounded the whole ulcer. The color was black—it was terrible. I did not know what the result would be, but went to work heroically. Concluded I would try Bovinine, and I at once used it freely, and in forty-eight hours the gangrene was entirely expelled. I placed her on iron tonics; the ulcer granulated nicely, and all was very satisfactory.

I never experienced such a grand and quick dispelling of a grievous growth as was obtained by the use of Bovinine. I tried it on another case with the same satisfactory results. Two physicians were appointed to consult with me in the first case, expecting to see gangrene and a very odorous ulcer, but when they arrived they found nothing but a healthy ulcer. It was truly wonderful—my treatment now for gangrene, ulcers, etc., is Bovinine.

DANGEROUS CASE OF ERYSIPELAS.

By Dr. T. J. Biggs, Sound View Hospital.

Ella R——, Stamford, Conn.; age 36; January 8th, 1899: well-developed case of erysipelas. Onset had been sudden, ushered in by a violent chill, followed by a fever which reached 105 degrees; pulse 130, coated tongue, nausea and vomiting. Severe pain in limbs and epistaxis. At the end of a few hours patient was in a violent delirium. Shortly after the chill, an eruption appeared, beginning in red spots, which rapidly coalesced and spread. There was a great œdema of the skin; the swelling so great as to close the eyes and distort the features. Vesicles had developed and coalesced, forming blebs of considerable size. Patient

anæmic with albumen in the urine, and considerable infiltration into the areolar tissue. It was a well-defined case of phlegmonous erysipelas, so severe that my prognosis given was unfavorable.

Together with internal treatment, the entire surface was dressed with Bovinine pure; while rectal injections of Bovinine, milk and salt water were given every two hours. The Bovinine dressing was changed every two hours. January 12th, the condition had so much improved that it was possible to give the Bovinine per mouth; a teaspoonful every two hours, and the Bovinine dressings were changed every three hours. At this time the eruption had begun to subside, the general symptoms had abated, the part affected had become more tender, the swelling had almost entirely disappeared, and there was a moderate desquamation. The urine was normal, with the exception of a slight excess of uric acid.

January 22nd, 1899, the patient was discharged, without a trace of the condition remaining. I have never in my experience seen so thorough and rapid a result under any other treatment.

TRAUMATIC ERYSIPELAS.

By W. H. Parsons, M. D. Omaha.

A man in St. Joseph's Hospital, Oneota, had his arm smashed in a railroad accident; the fractures were compound and badly comminuted, and in a few days an erysipelatous condition set up, which threatened his life. I was in the hospital, and the attending surgeon, an old friend of mine, called me to view the case. It was truly desperate. I advised taking off all dressings, to put the arm on a pillow, cleanse it thoroughly with hot bichloride, and wrap the entire arm in pure Bovinine. After some hesitation it was done, and in four days the condition had so far changed as to allow the arm to be put back into the dressings.

ERYSIPELAS CASE.

By W. H. Parsons, M. D., Omaha.

Of erysipelatous inflammation of the face, one of the worst cases I ever saw was in Dayton, Ohio. Nothing appeared to check the inflammation, or to stop the spread of the disease. The patient was delirious, prognosis grave.

Bovinine upon soft cloths was spread over the entire surface of the face and scalp, and changed every one or two hours. The result was magical. No other kind of applications were made, and patient was convalescent in three days.

ERYSIPELAS, WITH CELLULITIS.

By E. C. Frost, M. D., Brocton, Mass.

A case of erysipelas of face and scalp early became a severe cellulitis, and the process of suppuration did not cease till scalp, muscular tissue, cellular tissue, and a large surface of pericranium were destroyed, the slough extending from the occipital ridge on the back to within two inches of the eyebrows on the front, to the zygoma on the left and to a level with the ear on the right.

After the slough was removed, I dressed it at first antiseptically, and would then pour Bovinine upon the sore till it was thoroughly covered, when I would put on iodoform gauze saturated with the same, and hold the whole in place with moist iodoform gauze and a bandage.

It was perfectly wonderful to see the bone cover itself with new pericranium, and the sore fill in with new granulations, till now only a small, irregular strip remains to be covered with cuticle to make repair complete.

BOVININE IN GANGRENE.

By Dr. T. J. Biggs.

Gangrene is the death of any part of the body in consequence of disease or injury. Gangrene is divided into moist and dry. Of the moist gangrene there are two varieties—viz: localized traumatic gangrene and traumatic spreading gangrene.

The causes of moist gangrene are predisposing or exciting. The predisposing causes are: Defective nervous power, as in palsied limbs or division of large nerve trunks; general debility from poor food and improper nourishment; use of alcoholic drinks; debilitating diseases; atheromatous changes in the arteries of old people.

The exciting causes result from whatever interferes with or arrests the circulation of a part. These may be divided into:

(1) Arrest of the supply of arterial blood to a part, which may be produced by accident, or by ligature or other surgical operation, or by thrombosis or embolism of the arteries.

(2) Obstruction of the circulation through a part. This may arise from pressure either from within, or from the growth of a tumor; or from without, as from the formation of bed-sores. Obstruction to the capillary circulation necessarily accompanies all acute inflammations, and forms an important element in the production of gangrene.

(3) Obstruction of the return of venous blood to a part. This seldom the sole cause of gangrene, even when important veins are occluded by thrombosis or pressure.

(4) Extreme weakness of the heart's action. This is a powerful accessory cause when there is any obstruction, either to the arterial flow or to the venous return. Finally, whatever destroys the cells of a part; as injuries, application of chemical agents, effusion of a putrid fluid, absorption of putrid matter, prolonged use of mercury, excess of heat or cold.

THE LOCAL SYMPTOMS OF LOCALIZED TRAUMATIC GANGRENE.

At the beginning of the attack there is usually pain and tenderness of the parts, which becomes very acute and lancinating; it is of a severe burning character; there is increased local heat; the discoloration, which is at first of a vivid red, is changed to a deep purple or black, with here and there greenish spots. The part becomes greatly swollen, soft, and soggy, from the formation underneath of fluids and the gases of decomposition; the epidermis is elevated in blisters. When the part is dead, the pain and tenderness cease; it becomes cold, the bright redness disappears, and a sickening fetid smell is exhaled. When the progress of the disease is arrested, a healthy circulation is established up to the margin of the mortified part, and a line of demarcation separates the living from the dead tissue.

LOCAL SYMPTOMS OF SPREADING TRAUMATIC GANGRENE.

In this variety, the disease spreads, hour by hour, with alarming rapidity. The color is characteristic and striking. described by Prof. Keen as of a "deep bronze hue, like the

rind of bacon." The part is hard and brawny, the limb becomes swollen, and the gases of putrefaction are evolved, giving it a crackling sensation. These gases are hydrogen, nitrogen and hydrogen sulphide.

DRY GANGRENE; SENILE GANGRENE; SYMPTOMS.

The want of a due supply of arterial blood in these cases is owing not only to the diseased state of the arteries, but also, in a great measure, to the weak propulsive power of the heart, and consequent feebleness of the circulation, especially through the lower limbs. When the circulation is sufficiently interrupted to lower the nutrition of the limb, a sensation of weight in the part, with coldness, itching and tingling of the feet, and cramps of the calves, are complained of. These symptoms exist for some time before gangrene comes on. The disease may commence in different ways. In many cases it begins without any apparent exciting cause. There may be coldness of the extremities, numbness, and tingling. On examination, a small dark or purplish spot may be found on the inside of one of the toes, not larger than a mustard seed. This is succeeded by a vesicle, which exposes a black surface on bursting. This gradually spreads until the whole foot is involved, traveling up as high as the ankle. It may begin on several toes simultaneously, or it may show itself on the instep or heel. The part destroyed becomes black, dry, withered, cold, insensible, resembling in appearance the limb of a mummy; hence the change is often called mummification.

HOSPITAL GANGRENE

is a severe ulceration, in which there is copious exudation and infiltration of the affected part, together with rapid decomposition. It arises where a number of sick and wounded men crowded in ill-ventilated apartments, deprived of nourishing food, and where there is no opportunity for separating the infected. It may affect any kind of wound or even a mere bruise. Hospital gangrene may be divided into iodopathic when it depends upon constitutional causes, and traumatic when it has its origin in an external injury.

GENERAL COURSE OF TREATMENT IN GANGRENE.

Patient must be at once isolated, and, if possible, a special nurse should be assigned to the case, and, at the same time, the strictest hygienic precautions enjoined. It is proper to commence with a free purge, mercurial preferred; during the course of the disease the bowels should be kept in a soluble condition. To allay pain and irritability and produce sleep, opium in some form should be administered in as large doses as necessary. For the first two or three days a teaspoonful of Bovinine in milk should be given every hour—at the end of third day it should be increased to a tablespoonful every two hours. In children, the quantity should range from ten drops to a teaspoonful every hour or two hours, according to the age. The Bovinine will thoroughly nourish and sustain the patient, and at the same time retard the pathological process by restoring the blood to its normal quality, and keeping it so—the local treatment as follows: The diseased surface should be thoroughly depurated with the Bovinine and hydrozone reaction. The hydrozone I now use in preference to peroxide of hydrogen, for the reason that the chemical reaction between the hydrozone and Bovinine continues longer, and a greater quanity of oxygen is released; following this, the parts should be irrigated with Thiersch solution, dried, and dressed with Bovinine pure, as per the technique in ulcer dressings. This process of cleansing and dressing should be repeated from every hour to three hours, according to the severity of the case. This same course should be adopted in the treatment of erysipelas.

GANGRENED TISSUE TRANSMUTED TO HEALTH BY BOVININE.

The constant evidences of immediate arrest and purging of gangrene from the most delicate tissues already mortifying, by the simple power of Bovinine, are sufficient to assure surgeons that here is a power for healing never before imagined possible.

EXPERIENCES AND REMARKS OF PROFESSOR E. H. PRATT, M. D., CHICAGO.

To my Co-Laborers in the Practice of Medicine and Surgery:

Something more than five years ago, Dr. C. S. Eldridge, of Chicago, asked me if I was alive to the value of local feeding in varicose ulcers of the legs. I replied that I was not. He then informed me that he had successfully treated a few bad cases of varicose ulceration of the legs, which had proved intractable to all other measures, by the local use of Bovinine.

[BOVININE VERSUS GANGRENE.]

During the next week there chanced to come under my observation the only case of gangrene of the scrotum that I had ever seen. The gangrene appeared at the bottom of the scrotum a few days after an operation, and spread rapidly; the lower half of the scrotum rotted away, exposing the testes, upon which gangrenous spots speedily put in an appearance. Red streaks extending from the scrotum upwards and outwards along either groin indicated that the process of death was going on along the tissues in the direction of the cords, the left one being the more marked. The areola tissue beneath the inflamed tracts rapidly rotted away, so that the finger could readily be passed its full length in the direction of the inguinal canal on either side. The patient's temperature ranged from 101½ to 103 degrees, his pulse seldom going below 120, and death was rapidly approaching. Strenuous efforts were made to check the progress of the spreading gangrene, but to no purpose. The necrotic surfaces were frequently and thoroughly dressed with various antiseptic preparations, such as charcoal, quinine and iodoform, after being carefully cleansed with sometimes bi-chloride solution, sometimes carbolized water, and sometimes a weak solution of bromine. In spite, however, of continuous and faithful attention to the decaying parts, as well as careful treatment of the patient's general condition by the exhibition of appropriate internal remedies, the gangrene spread rapidly, and the room became so offensive with the odor

of death as to be nauseating to those in attendance upon the case, and the exhibition of Platt's chlorides and other antiseptic disinfectants seemed to be utterly powerless to control the terrible odor.

After at least two-thirds of the scrotum had been rotted away and the patient's life completely despaired of, it occurred to me to try the efficacy of local feeding as a last resort.

Under an anæsthetic, much of the dead tissue was removed with the aid of tissue forceps and scissors, some of it, however, clinging so closely to the decaying surfaces as to render the removal of all the patches of gangrene impossible. Iodoform gauze was then soaked in Bovinine, each testis was wrapped in a separate strip of it, pieces were tucked well up into the groin under the line taken by the rapidly-spreading disease, then a large piece of it was wrapped around the entire scrotum and spread over the outer surfaces of the groins.

While memory lasts I can never forget the extreme surprise as well as satisfaction at the result of the first treatment. The odor immediately disappeared, the fever of the patient subsided, his pulse lowered, and he was perceptibly better in every way, his restlessness and thirst rapidly disappearing, and he became for the first time comfortable. Bovinine was poured over the surfaces of the gauze once in two hours, but the dressings were not removed for twenty-four hours, and when removed there was no odor whatever to the wound; and although the patches of gangrene were not entirely gone, the granulations were of a healthier type. The Bovinine dressings were again applied, and were kept in position this time for forty-eight hours (saturating the gauze every two hours by pouring Bovinine over its outer surface), when the gangrene had almost entirely disappeared, and the case was evidently rescued. The Bovinine dressings were continued until the case was entirely recovered. So much of the scrotum had sloughed away, however, that as the wound healed it left the testes exposed in two-thirds of their extent. The man was then anæsthetized, and the lower margins of the remaining portions of the denuded scrotum were drawn down and brought together over the testes so as to satisfactorily cover them. A dressing of Bovinine was placed over the wound, which healed without suppuration, and

the final result was a complete recovery, the appearance of the parts being that of a first-class amputation of the scrotum.

[BOVININE IN A GANGRENOUS HOSPITAL.]

The success of local feeding in this case was not forgotten. Soon after, while on service as a consulting surgeon in Cook County Hospital, gangrene appeared in one of the wards, and, fully alive to the serious nature of the infection, I tried to prevail upon the authorities of the hospital to furnish Bovinine to stay the scourge. This they refused to do on account of the expense of the preparation and because they considered it a food and not a medicine, and a proprietary article at that, and as a result of the various excuses which were trumped up I was not able to obtain it from the hospital supplies. Resolved, therefore, to stay the scourge at all cost, I furnished the Bovinine myself, and had the extreme satisfaction of bringing every single case to a rapid and successful recovery, and completely stamping out the plague from the wards in which it appeared.

Backed by this experience of Bovinine in so formidable a malady as gangrene, it occurred to me that it might be as serviceable to prevent gangrene as well as to eradicate it.

[BOVININE IN GYNÆCOLOGIAL OPERATIONS.]

In several of my operations for vaginal hysterectomy, where the vault of the vagina had been in such a poor condition of nutrition as to become mottled with purpuric spots while cleansing the vagina for the operation, I had trouble with the subsequent appearance of gangrene in the vault of the vagina. Bovinine here, as in the other cases, had been my sheet anchor, and proved adequate to the occasion. Reflecting that what could be cured could certainly be prevented, I then began the practice of local feeding in the vagina in those delicate cases where hysterectomy had been determined upon and the appearance of gangrene was feared as a consequence.

Here is a case in point, for instance: A lady, 73 years old was brought to me for treatment, and on examination I noticed that the vagina was so pale and anæmic and the circulation so poor that the mere process of examination produced a mottled appearance of the atrophied cervix and the vault of the vagina. I kept the vagina filled with

Bovinine night and day, until the vagina could be douched and manipulated without inducing purpuric spots. She was anæsthetised, and the uterus, ovaries and tubes removed. The wound healed without the slightest trace of suppuration or of any approaching gangrene. She made a rapid convalescence, and in two weeks' time she was able to sit up, and in a month's time was discharged a perfectly well woman. Nearly two years have gone by since then; she has gained 30 pounds of flesh, and is now one of the happiest and healthiest women in Wisconsin.

I have found local feeding of the vagina by means of Bovinine valuable also not only as a preparatory treatment for operative interference, but to renew the tonicity and vitality of the parts in cases where sexual waste from various causes has been excessive, and the general strength of the patient correspondingly depleted. It seems to feed, strengthen and revivify the tissues to which it is steadily applied for a few weeks in succession. I have never known it to cause irritation or inflammation or any unhappy results, not even discomfort. On the contrary, it seems to be stimulating and strengthening to the general system as well.

[BOVININE AND OXYGEN FOR STERILIZATION OF PARTS.]

While I am speaking of the subject, there is another use which I have also made of Bovinine, to which I would like to attract your attention, and that is in the preparation of a field for intended operation upon the skin surfaces. While scrubbing with soap and water, etc., removes the sebaceous matter and other sources of infection from the surface of the cuticle, it does not reach the deeper parts of the sebaceous and sweat glands, and, at the same time, it scratches away so much of the cuticle as to leave the sensitive and readily-absorbing surface at the mercy of any infecting matter to which it may be exposed. There is a substitute for the scrubbing which is more effective as a cleansing measure, which saves the traumatism occasioned by the mere scratching of the brush, and which has been so satisfactory in my practice now for several years that I desire to give it my hearty endorsement and suggest it as a measure for general adoption by the profession, and that is the local application of Bovinine, followed, while the Bovinine still covers the surface, by

peroxide of hydrogen. Bovinine is so penetrating as to enter both the sebaceous and sweat glands freely, and with the peroxide of hydrogen removes all evidence of grease or filth of any kind. After the froth has been washed away by sterilized water, the surface of the skin appears clean and smooth, and is then ready for such treatment as the surgeon may prefer.

I have now employed this combination of Bovinine and peroxide of hydrogen in several hundred cases as the first measure in cleaning an operating field, and it has given me such complete and universal satisfaction that I heartily commend it to the consideration of my fellow surgeons.

Fraternally yours,

E. H. PRATT.

Chicago, November 6th, 1897.

GANGRENE OF THE SCROTUM; THE MEMBER ENTIRELY DESTROYED, AND ENTIRELY RESTORED BY BOVININE TREATMENT.

By Jos. L. Black, M.D., Cook County Hospital, Chicago.

William F——; age 30; came under my care February 28th, in a truly pitiable condition. The scrotum was completely gangrenous and almost ready to separate. A broad region almost across the abdomen, and from near the navel to points several inches down the thighs was covered with an angry erysipelatous blush. The affected parts gave out a horribly offensive odor, and the skin and breath partook of this to some extent.

Feeble and pale; frequent chills; pulse was feeble and thready, running 110 to the minute; respirations 30, shallow; profuse, offensive diarrhœa; temperature usually near 102 degrees. Immediate stimulation was resorted to. When the pulse had been steadied, the affected parts were cleansed and a boracic acid wet dressing applied. This was continued for twenty-four hours, at the end of which time the scrotum sloughed away, septum and all, leaving the testes as bare as if they had been carefully dissected out.

The case was seen by a number of physicians, and they were unanimous in the opinion that nothing but a plastic operation would answer, some advising the removal of one testis. Instead of resorting to this, I resolved to try Dr. Pratt's treatment with iodoform gauze saturated with

Bovinine. At the end of forty-eight hours the raw surfaces began to glaze over, and, a few days later, granulations sprouted plentifully from the stump of the scrotum. These spread downward and the testes drew up slightly, and at the end of three weeks the latter were completely covered in with a new scrotum.

Was discharged April 5th, in perfect health. That this has continued may be inferred from the fact that Mr. F—— is now a member of a baseball team, and engages in various kinds of active work.

DIRECT HEALING OF A GANGRENED STUMP FROM AMPUTATION.

By WITTER K. TINGLEY, M.D., Surgeon and Gynæcologist to the Backus Hospital, Norwich, Conn.

(From the New York Medical Record, March 16th, 1896. Corrected by the Author.)

Mrs. P——; aged 74; in poor circumstances; had undergone much privation and suffering. During the cold weather she thought she had frozen the toes of her left foot. From that time she had great pain, and soon the foot, from the scaphoid bone down, became gangrened. I saw her some weeks after the foot became affected. My examination revealed dry gangrene of the lower half of the foot, with the line of demarcation well defined. I decided to perform an operation, taking the leg off just below the knee. Everything went well except some pain in the stump and some little elevation of temperature, with great restlessness.

When I took down the dressings to remove the stitches, I found what had caused the pain. The anterior flap was black and moist, having a peculiar musty odor. It certainly looked as if the disease had returned in the stump. Without any hope of good results, I ordered all the usual dressings stopped, and sterilized gauze soaked in Bovinine substituted, to be applied twice a day, the stump to be carefully washed at each dressing with bi-chloride solution, one in two thousand. The result was really surprising. Gradually the black spot looked more and more healthy, the dark appearance grew less and less, healthy granulations started up, and in four or five weeks the stump was white and all healed, the anterior flap, that at the time of operation was thin and flabby, now being plump and firm.

GANGRENE IN AGED CASE. CONDEMNED TO AMPUTATION

By Dr. J. H. Dearborn (City Physician), Somerville, Mass.

I was called to an old man, 80 years of age, and found a gangrenous slough, starting at the ankle and extending up the leg. I called in at once a surgeon in consultation, who, after a careful examination, advised amputation above the knee, as the only chance of saving the man's life. But knowing the patient's previous history, that he had not fully recovered from his first attack of paralysis of the year previous, I judged that the shock of an amputation would be too much for him. I poulticed liberally the leg, long enough to loosen up the dead tissue, then curetted all of it out. When I was through I found an area of some five inches long and two to three inches wide, of varying depth, extending up from the ankle joint. About this time I read in a New York medical journal of the successful use of Bovinine combined with iodoform locally applied. I had this combination prepared, gauze saturated with it, and the leg dressed every day. Soon healthy granulations appeared—no coarse granulation or proud flesh at any time. The leg completely healed up; the man has now had its use for eleven months. Such a result in such a subject I have never before known of, and have no doubt it will be deemed by many of my friends of the profession incredible, but such were the facts.

GANGRENE OF FOOT.

By Geo. W. Smith, M. D., Macon, Mo.

I was called July 13th to see Mrs. J. W——, 65 years of age, suffering from sores on her foot, with the characteristic odor of gangrene; tissues very black; sloughing begun, and ulcers present, with foul odor. These were cleansed with antiseptic hot water, thouroughly dried and dressed with absorbent cotton wet with Bovinine. Pain was relieved in twenty minutes, and she had the first sleep she had enjoyed for some nights. The limb was dressed daily, with Bovinine between times if pain began. On the twelfth day ten of the ulcers were completely healed, the cuticle having come away in sheets. On the seventeenth day all the ulcers were healed, and she has continued to do washing and housework uninterruptedly since.

HOSPITAL GANGRENE AFTER AMPUTATION.

By J. J. Dooley, M. D., New York.

Henry Eisendorf; German; age 29; on December 1st, 1894, suffered amputation of left leg, and was doing nicely until the 8th, when hospital gangrene set in, and I was about to reamputate immediately, higher up, but was persuaded by a professional friend to try Bovinine treatment of the gangrene. After curetting and cleansing, I covered it with a large quantity of gauze saturated with Bovinine, changed three times a day, for four days; when examination showed that gangrene had been cut short, and the wound was assuming a healthy appearance. The Bovinine dressing was repeated for three days longer, with the effect of restoring the gangrene tissue to an absolutely healthy condition. Bovinine dressing being repeated daily, by January 10th the healing was perfected.

THE RELATION OF PAIN TO MAL-NUTRITION OF NERVES.

In March, 1894, the Sanitary Era published the following statements on this subject, in connection with the report of a case at the New York Polyclinic:

The editor saw the case at the second dressing, and asked the patient if it was painful. She replied that it had been extremely painful until she came to Dr. Biggs, but as soon as he had dressed it the pain ceased and she had suffered no further. This singular experience brought to mind the identical report given by the brakeman with the lacerated arm and also the delighted exclamation heard from another sufferer a moment after the Bovinine dressing had been applied: "Oh doctor what have you been putting on? My pain is all gone!"—an exclamation which the doctor informed us was a usual occurrence in such cases. As there is nothing of opium, cocaine, ether, arnica, or any other pain-killing drug in Bovinine, it becomes a subject of most interesting inquiry, what could be the nature of this unheard-of and mysterious effect?

The Buffalo Medical Journal for September, 1895, contained a learned and ingenious "Study of the Origin and Nature of Pain," by Herman G. Matzinger, M.D., assistant physician in the Buffalo State Hospital. Dr. Matzinger's thesis is, substantially, that pain is "the result of an ab-

normal, more or less intense, chemical tissue change, which is always associated with changes in the circulation in the part affected"; and that "the entire phenomenon of pain is created and conveyed in the nerve system that accompanies the blood vessels—the sympathetic vaso-motor system—as suggested by Oppenheimer." The nerve ganglia "presiding over the life and nutrition of a given area of tissue maintain a certain tone in the capillaries when chemical changes go on normally, like a mild continuous current; but when the stimulus is increased, it produces a dilatation of the vessels (not a contraction as in muscle reflex)"; hence the phenomena of pain and inflammation.

There is now a new and special occasion for interest in this theory of pain. Invariably, infallibly, the introduction of Bovinine into the currents of distempered tissue-change that agonize the sufferer, is found to annihilate the pain in the most mysterious manner within a few moments, often with but an unnoticed interval. What is so probable, as that reinforcement with highly vitalised and oxygenated Bovinine should instantly check the degenerative tissue-change, clear out of its waste (as pus and stench also miraculously vanish in such cases), relieve the dilation of the vessels and the tension on their nerves, and thus cut off the source of pain?

HOW DOES BOVININE ANNIHILATE PAIN?

Professor A. L. Loomis, in his "Practice of Medicine," page 107, at the beginning of the chapter on the treatment of neuralgia, emphasises this fundamental aphorism: "Neuralgia has been well said to be the cry of a nerve for better blood."

The cessation of the excruciating pain of the nerves involved in the degenerative process of ulceration, immediately following a direct supply of Bovinine to them (when the proper means have been used to clear the way for topical access to those tissues), has been many times proclaimed by a "cry" of joyful relief; as noted often, but oftener passed without notice, in our reports of cases and operations. The physiological cause of this phenomenon has also been a subject of much speculation. But does not the above-quoted aphorism at once supply explanation and find its own demonstration in the miracle-like relief of the sufferer, which we have so often recorded?

CHRONIC ULCERATION.

THE PHILOSOPHY OF TOPICAL APPLICATION OF BOVININE IN CHRONIC ULCERATION.

By T. J. Biggs, M. D., Sound View Hospital.

The treatment of Chronic Ulceration has baffled surgery for centuries. In spite of all their accumulated skill and appliances, the surgeons of the world had, to this day, signally failed in very many cases to accomplish a permanent or a complete repair, and often, even to bring about any improvement.

Of whatever variety it may be, and from whatever occasion it may arise, every ulcer depends for its existence upon a failure of the local nutrition due the part from the blood, in consequence of some deficiency of the blood itself, of its circulation, or of its defensive energy relative to the attacking cause, if such there be. Conversely, it needs no argument to show that a radical cure of ulceration must depend on the restoration of the nourishing and vitalizing agency of the blood in the part affected. But the difficulty, and often impossibility, of so improving the quantity, quality, and circulation of the patient's own blood product, as to overpower and sweep away in its current both the agents and the debris of tissue degeneration, while replacing them with the living elements of living tissue, has been the insurmountable barrier to our victory over Chronic Ulceration—insurmountable, that is, by any attempt of human power to insure adequate production and application of blood by the diseased or debilitated system. When the physician or surgeon runs up against this barrier, and finds that all the resources of his art cannot bring about a production of blood sufficient to repair the waist of the disease, he knows that he is defeated—unless he happens to know that where he cannot produce blood, he can introduce its equivalent.

While the introduction of Bovinine into the general circulation is now known to be helpful and practicable in every case of need for more or better blood anywhere, and should always be employed; the extent of its constitutional efficacy for the treatment of ulcers, through the general circulations, has not yet been fully tested, nor need it be, since the immediate and ample supply that can be brought to bear upon them *in situ* can be depended

upon for local effect to the fullest extent. No fact in any science, medical or other, has been demonstrated more absolutely than this.

The explanation of the process will be evident to all who are familiar with the cell theory of Virchow, or the study of embryology, which shows that all living structures are composed of one or more cells, each cell being peculiarly adapted to perform the function assigned to it. Chemical change—including the assumption of oxygen, and the production, complete or partial, of carbonic gas, and, above all, assimilation, secretion, excretion and reproduction—is retained by every tissue to a greater or less extent. Both plants and animals also possess the wonderful power of rearranging the constituents of their nutriment, as combined in the blood, into forms identical with the peculiar components of their various tissues.

Experiments have been made with the individual cells and isolated colonies of simple structures by supplying nutriment artificially, by which they have been kept alive for days independent of the influence of the nervous system, each cell assimilating, by contact with the proper nutritive medium, the material necessary for its growth and integrity. It is, therefore, proven that each and every tissue is capable by itself of absorbing and assimilating nutriment, and, of course, all the more, of appropriating the already assimilated and vitalized protoplasm of Bovinine.

Upon these conditions is based the theory of topical feeding in chronic ulceration, and to this inherent power of life in each individual cell do we owe the success obtained by topical nutrition.

Granulating surfaces are non-absorbent if their condition be of an acrid nature, or so long as the applications made are irritating or incapable of nourishing and vitalizing the individual cells. But if, on the other hand, the substance presented be of a neutral reaction, of a greater density than that of healthy blood, and be composed of substances capable of sustaining the life of those cells, not only will they absorb and assimilate such nourishment in large quantities, but they will live and thrive, and assist nature in repairing her loss, in such a way as to leave the surface of the part free from scar, or comparatively so.

EFFECT OF LEADING NUTRIENTS EXPERIMENTALLY DETERMINED IN COMPARISON WITH BOVININE.

With a view to ascertain precisely how topical nutrition can be best effected, a series of experiments were conducted, and various forms of nutriment were applied to ulcerated surfaces. Dilute solutions of sugar, starch, predigested starch, malt extracts, peptone broth, beef tea, extracts of beef, dissolved pepsin, papoid, ichthyol, milk, and the preparation known as Bovinine. Ten consecutive cases were tried with each substance and the effect observed, care being taken to note any exhisting diathesis in each particular patient, which, if discovered, was promptly treated. In most of the experiments three or more substances were used on the same patient at the same time, according to the number of the ulcers, and while all rendered more or less benefit, milk, and Bovinine, were more prompt in their action than the rest. Further experiments, however, proved that milk turned rapidly sour, and produced irritation. A series of experiments were also conducted with Bovinine and iodoform on the same patient; here the ratio was found to be about ten to one in favor of the Bovinine.

TISSUE DISINTEGRATION; PHYSIOLOGICAL REPAIR, AND THE ASSISTANCE IT REQUIRES.

When a part becomes diseased through inflammation of any kind, there is a contraction of the capillaries, with retardation of the flow of blood, dilatation of the vessels, and increased rapidity of circulation; followed by exudation of the liquor sanguinis, with migration of the white corpuscles. This is succeeded by a quiescent state of the capillaries, with stagnation of their contents, thereby shutting off nutrition; the final result of which is molecular death, and ulcerous formation. A careful microscopic examination of the capillaries around a chronic ulcer will reveal thrombi plugging them up for a considerable distance, and shutting off nutrition from the part.

Now, the serum of normal blood is largely made up of water, including albumen and certain saline constituents. But the serum from diseased tissue is perverted, so that in the liquour sanguinis transuding from the vessels there is a larger proportion of albumen and salts than in serous

effusion proper; and in addition to this, there is the presence of fibrin, which causes the effusion to undergo coagulation in the tissues. Such being the case, it follows that so-called coagulable lymph is liquor sanguinis with the proliferation of white corpuscles which have migrated through the vessels, besides corpuscles in great numbers which have resulted from the proliferation of the fixed cells of the tissue in which the inflammatory disease is going on In other words, it is embryonic tissue. This infant or rudimentary tissue must now be vitally and materially nourished, or it will die. As we have seen that the blood in inflammatory tissue is both obstructed and perverted in all its properties, vital, physical and chemical, it is evident that it cannot supply the part with proper nutrition, and ulcerous degeneration and corruption is the necessary result in due proportion to the change.

The chronic failure of our art to cure chronic ulceration is thus clearly explained. It is when this incapacity of the locally obstructed and perverted blood to impart vital nutrition becomes chronic that a chronic stage of ulceration supervenes; and wherever this condition is established, so that nutrition cannot be brought to bear upon the part from within—that is, from healthy and sufficient native blood—such cases must always be, as they have always been, permanently incurable by medication external or internal, or by surgical interference, of any kind known to the traditional practice. The sore is a prennial fountain of cells proliferating, dying and rotting in an exudate fountain from which vitality and nutrition are excluded by an established condition. One thing is needful, and nothing else will do. The vital blood, that cannot pass alive through the channels blocked by the disease, must be brought to bear from another source, without, and by another way—external application.

Three objects or effects are to be accomplished. The first of these, the removal of the septic condition caused by dead tissue, may be fairly accomplished by the usual antiseptic agents—while they remain on the spot—and the second, which is to stimulate a more abundant cell-proliferation and extravasation of liquor sanguinis, so as to clear the way from the living to the perishing tissues, is also served in a measure by those recent essays in topical stimulation with beef tea, or with inert nutrients, such as egg

albumen, milk, cream, raw beef, and latest of all, proto-nuclein; which are erroneously supposed to be capable of also creating a nutrition of the perishing corpuscles—the very point where all such means must fail. Both the stimulants and the stimulating but inert nutrients that constitute the latest modification of the traditional practice with a view to what is supposed to be "topical feeding" of ulceration, are alike powerless to vitalize and vitally nourish this perpetually perishing embryonic tissue. There is nothing in them to do it; be they what they may, the essential condition, life which is wanting in the sore, is equally wanting in them to produce the effect of life and life only—nutrition. In fact, barring some little degree of vitality that may be lingering in the part itself, it would be quite as useful to plaster your nutrients and stimulants on a stone wall. In spite of them, the sore will run on its devouring cycle without end, as all experience shows, even though insufficient improvement or a temporary palliative healing may sometimes be effected.

It is here, then, that Bovinine performs that almost divine function for which it is now famous in its results; accomplishing all the three *desiderata* of healing, simultaneously, in one act, viz: as the prince of antiseptics it annihilates sepsis, pus, stench, and pain itself, with a celerity and certainty that seems miraculous in contrast to all that had been heretofore known of healing powers—yet not requiring to be withdrawn, like other antiseptics, to give place to the further processes - it tones up, or, rather, regenerates, by its life-giving power, the morbid tissues to a more active and healthy proliferation; and, most unique and exclusive of all functions, it carries no mere inert nutriment, but life and the ultimate physiological product of Life-in-nutriment, vital, accomplished and vitalized nutrition to the moribund cells; adding to them, besides, its own countless host of robust original cells, like a fresh and victorious army reinforcing an exhausted garrison and raising the siege. The fixed cells of the structure attacked by the disease, as well as the white cells that migrated under the influence of the inflammation, absorb the vital element applied with an avidity that is witnessed by the speedy bleeching of the Bovinine-saturated gauze applied to the sore throughout its exact outline; they increase rapidly in size, going on to a mature and healthful de-

velopment as true tissue cells, compactly woven in true living tissue; proliferating thus in great numbers all over the surface lately diseased, until the process of repair is complete and the wound is permanently healed.

It is clear that neither chronic ulceration nor any other case for tissue-repair can be successfully handled without a practical apprehension at least of the physiology, pathology and the definite therapeutic necessity here outlined. "Topical feeding" is now often spoken of with high esteem, and many use Bovinine as the prince of topical nutrients, which it necessarily is; but no physician will comprehend this treatment, or the mastery of disease there is in it, until he goes beyond the comparative estimation of nutrients to the deeper discrimination between nutriment and the effected nutrition which no nutrient as such, however highly developed, can command; nutrition, the frustration of which is the very essence and definition of disease, and the insurmountable frustration of which alone constitutes chronic and incurable disease—to be overcome only by the introduction of the living *opus operatum* of physiological energy, reproducing life itself, as well as reconstructing the organism of life from its living constituents.

From the Medical Summary: in Southern Clinic.

For cases of ulceration, especially the deep excavating variety in the leg, and for ulcers generally, measures commonly employed, as antiseptic and stimulating washes, peroxide of hydrogen, antiseptic fluid, solutions of mercuric chloride, iodoform, etc., with elevation and rest of part, are found to be only partially successful, affording at best results not entirely permanent. In only a percentage of cases has skin-grafting succeeded [until] . . . there now comes forward an agent that claims to possess the power to supply this want, revealing a new process, with a new name, in the field of therapeutic achievement.

Reports from different quarters of success in its employment, by numerous practitioners of character and experience, make it certain that no mistake has been made in the estimate of its value. It is so simple it is a wonder the discovery of its usefulness was not made before. For this reason many may hesitate to give its claims credence, and refuse to apply the crucial test of experimental therapeu-



Fig. 1. Traumatic Ulceration 3½ by 7 inches: showing a black slough in centre, down to bone: the ulcer as it appeared after preparatory treatment for skin-grafting.

tics. To such we would say, if you have a suitable case, get a supply of Bovinine, and settle for yourself the question of its availability.

SKIN-PROPAGATION WITH BOVININE IN THE TREATMENT OF TRAUMATIC INJURIES AND CHRONIC ULCERS BY GRAFTING.

The ability of Bovinine to propagate new skin on the largest raw surface from a few minute and scattered points of graft skin, such as the patient or any one else can furnish from his own cuticle without inconvenience, while, at the same time, putting a stop to the pain, waste and fever that are so terribly fatal in extensive lacerations or burns, is a discovery full of such blessed respite from agony and death, for the future, that we need not apologize for once more repeating the memorable first case.

The pain attendant upon skin-grafting, both to the giver and the receiver, the difficulty of procuring the living human skin in sufficient quantity, and the tedious long period of suffering while the grafts are setting or failing to set—these render a revolution in this great process that does away with all trouble, an event that one would expect to be hailed and celebrated the world over.

EXTENSIVE TRAUMATIC ULCERATION.

(See Colored Plates, Figs. 1, 2 and 3.)

By Dr. T. J. Biggs, New York.

F. L—— came to the Demilt Dispensary, December 22d, 1892, having sustained, two weeks previously, while at work as brakeman on the Long Island Railroad, a large laceration of the forearm, which was denuded of the integument and superficial and deep fasciæ, to the extent of seven inches in its long axis and three and a-half inches in width. For two weeks he had been treated at several dispensaries and hospitals, under antiseptic methods, without preventing the formation of a large-sized black slough, about two inches in length and extending down to the periosteum. Furthermore, as a result of the severe blow which the muscles of this region had sustained, total

paralysis of the forearm existed. He had been advised to have the arm amputated. This he refused to submit to ; hence his appearance at the Demilt Dispensary for treatment in this institution.

The preliminary treatment here pursued was the employment of such applications as would tend to hasten the removal of the slough and stimulate the wound to a condition of healthy granulation—namely, balsam of Peru, peroxide of hydrogen, etc.

The desired condition was obtained in about ten days' time, when it was decided to undertake to heal the wound by skin-grafting. The method employed, however, was not that of Thiersch, but the direct application of small graft points at intervals, to be nourished by topical Bovinine supply.

After careful cleansing the surface of the wound with Thiersch's solution (corrosive sublimate was not used, as it is believed to coagulate the albumen in the tissues and interfere with the adhesion of the graft; and the sovereign depurator, peroxide-on-Bovinine, was not yet known), and preparing a clean area on the other arm, from which the grafts were to be taken, several small pieces of skin were snipped off from this surface, washed with the Thiersch solution and carefully placed over the surface of the wound at a distance of one inch apart each. Eight of these minute grafts were employed in all. Directly over the grafts were placed strips of rubber tissue, soaked in Thiersch solution, and over this sterilized gauze, with the same solution. The dressing was completed by the application of more rubber tissue over the whole forearm and finally a splint and an evenly-applied bandage.

On inspection after forty-eight hours, the grafts were barely adherent and had lost their pinkish hue, showing a want of nutrition from the unaided natural circulation. One had been brushed off, leaving only seven, scattered over the surface of the ulceration as sources of skin-propagation. The dressing of Bovinine was now applied, and a peculiar effect was immediately experienced. Up to this moment the patient had suffered incessant pain in the wound, so severe that, for the two weeks and more previous, sleep could be obtained only by the use of powerful anodynes. The application of the Bovinine was instantly



Fig. 2. Showing graft points and proliferations after first Blood dressings, with in-growth of border skin.

followed by a sense of the most grateful relief, and within a few minutes the pain had wholly disappeared, and (the Bovinine dressing being continued) never returned!

The grafts were afforded constant artificial nutrition by Bovinine, on which they thrived, developed and became permanently adherent. The dressings from now on were changed about every forty-eight hours, until at the end of about eight weeks, when the wound was found to be absolutely and entirely well, having become covered with healthy epithelium, which had traversed the surface of the wound, having been developed alike from the circumference and from the several grafts. March 6th, 1893, the patient was discharged in perfect repair; the wound being fully covered with healthy skin, having but a comparatively small pink cicatrix, which was not sensitive, hard, or contracting the surrounding tissues.

It remains only to add that the arm, which had been from the time of the injury totally paralyzed, was restored to full power.

This brief, painless, and uninterrupted process, occupying only sixty-four days, and requiring only seven minute points of graft skin for some twenty-five square inches of new growth, which the nourishing Bovinine built steadily out from each graft over the bare intermediate spaces, created an epoch in tissue-construction of which the promise is even yet immeasurable; remembering, as we should, that in principle and substance it was but a repetition of a clear physiological process which Bovinine had already made invariably practicable in hundreds of cases on record.

"INCURABLE" BURN ULCER OF NINTEEN YEARS' STANDING" BOVININE SKIN PROPAGATION.

By Dr. T. J. Biggs.

John Francis; age 23; at the New York Polyclinic; had resorted to many competent surgeons, and had, in fact, been skin-grafted on two occasions, but this procedure had failed both times.

As the wound was in an exceptionally unhealthy condition, a longer period was taken for the preparatory treatment, which consisted in daily cleansing, followed by the application of Bovinine dressing, by which the wound was gotten into a sufficiently healthy state to warrant the application of skin-grafts in about two weeks—a condition

which had never before been attained. On the seventeenth day three small grafts, each about one-quarter of an inch in length, were placed on the surface of the wound and held in place by strips of rubber tissue. The dressing employed over this consisted of sterilized gauze saturated with Thiersch solution for the first twenty-four hours after the operation, and following this up to the time of his recovery, which was absolute and complete, Bovinine was the only dressing used. Two weeks after the skin-grafting the patient was discharged, the whole surface having become covered with a healthy epithelium, and has had no further trouble in the lapse of years since.

SEVEN-YEAR ULCER. HEALED IN FOUR WEEKS, WITH SKIN-SCRAPINGS IN BOVININE.

By Dr. T. J. Biggs.

Patrick S——; at Demilt Clinic; August 16th, 1894; varicose ulcer of leg, 2½ by 3 inches; had not, in spite of all treatments, healed in seven years. Small quantities of skin scrapings were deposited on the ulcer at six different points, and dressed as described above. The patient was discharged in four weeks with the ulcer completely healed and covered with new skin.

LARGE TRACT OF CHRONIC BURN ULCERATION HEALED BY SKIN-PROPAGATION IN BOVININE FROM MINUTE POINTS OF DERMAL TISSUE.

By Dr. T. J. Biggs.

Mary C——; age 22; February 7th, 1895; surgical ward of Demilt Dispensary; showing a tract of four or five square inches on the right side of her face completely denuded of the skin and superficial fascia, in consequence of a burn, which had been unsuccessfully treated by the usual methods in vogue at two of the city hospitals. The wound extended over the right malar bone, from a point just below the margin of the lower eyelid, downward and sideways over the nose and cheek, a distance of three inches, with an inferior diameter of an inch and a-half.

Now cleansed and treated with pyrozone, dressed for three days with wet Thiersch, and ten minute points of skin, about one-sixth of an inch in diameter (shrinking to



Fig. 3. Showing the arm in complete repair.

We need only leave the unparalleled and unvarying triumphs of painless grafting and propagation of skin from minute bits, over the largest surfaces, to speak for themselves as presented in the accompanying pages and to point the contrast between the blood-nourishing process and the cruel, half-impracticable and half-unsuccessful practice to which this branch of surgery has been confined hitherto, and with which it is still inexcusably disgraced.

half that size), were then taken and distributed within the periphery of the wound, protected with strips of sterilized rubber tissue and dressing of gauze soaked in salt water.

On the third day every graft was found adherent, and, after fresh depuration, a dressing of gauze soaked with Bovinine was applied, and repeated every day for a week, when all the grafts were found to be doubled in diameter. March 9th, making thirty-one days in all, the whole diseased tract was found to be perfectly healed and covered with new delicate skin.

[Whoever has had a running sore of this size to cover with skin according to the Thiersch method, by making another sore or sores of the same size in the aggregate, to be also treated, will be forcibly impressed by the contrast exhibited in these cases of topical Bovinine nutrition; not only by the ready and painless transfer of a few scattered points snipped anywhere from the patient's own skin, which heals with but the slightest care, but also by the continuous and rapid proliferation of skin from the graft points, all over the denuded surface, without suppuration and retrogression in any part; thanks to the vital energy of the applied Bovinine, which expedites the healing process with unprecedented rapidity, and in some mysterious way, from its first application on, removes and prevents all pain and inflammation.

Not mysterious, but obvious, however, is the virtue of topically-supplied Bovinine to fill the place of deficient or unhealthy circulation, making the cure of anæmic, sickly and tainted patients practicable, substantially the same as healthy ones, whereas hitherto it had been but very rarely, if at all, successful, as evinced in the most of these dispensary cases like the present.]

A LATE IMPROVEMENT IN THE TECHNIQUE OF SKIN-PROPAGATION WITH BOVININE.

By Dr. T. J. Biggs, Sound View Hospital.

Sam Cohen; age 21; September 20th, 1895; surface 2¾ by 3½ inches denuded of the fascia—an injury received six months before; had been treated at various institutions without result; had been skin-grafted, or, rather, this had been attempted, twice; but in both cases all the grafts died.

After two days of preparatory treatment with Bovinine, I commenced skin-grafting after my latest method, first thoroughly cleansing the surface with wet Thiersch solution for forty-eight hours; and the grafts being now deposited on the surface, four layers of plain sterilized absorbent gauze are laid over the grafts, carried around the leg and sewed. I allow this dressing to remain on for ten days, constantly feeding the grafts through the gauze by keeping it saturated with Bovinine and salt water, two to one. This method proves quite as effective as changing the dressing, with rubber tissue to hold the grafts in place; while it has the great advantage of allowing no chance of a single graft being disturbed before it has become firmly fixed.

In this case four minute grafts, of the diameter of a small pea, were distributed over the surface of the wound, covered and fed with Bovinine as above described, without change for ten days. On examination at the end of that time all the grafts were found not only immovably fixed. but grown by one-third of their diameter. Thenceforward. the surface was dressed every other day with plain sterilized gauze soaked in Bovinine, covered with oiled silk and bandaged. October 2d, twelve days from the start, the patient was discharged.

ANOTHER NEW DETAIL IN SKIN-PROPAGATION FOR DESPERATE ULCERS.

By Dr. T. J. Biggs.

Teresa Jones; age 7; January 1st, 1896; ulcer from a burn on the right eyelid, a year and a-half ago; obstinately refusing to heal under all the usual applications, including skin-grafting, which had been tried without success.

The sore was now thoroughly cleansed and dressed with wet Thiersch for two days. A single minute patch of epithelium of the size of a small pea was taken from the palm of the hand, and applied under a strip of rubber tissue, which was held in place by a coating of collodion, and a strip of plaster was applied to restrict the movement of the eyelid.

A novel and happy detail of technique here employed was the opening of a small passage through the collodion, above the wound, for cleansing and feeding the graft and

raw surface, with another opening below for draining the discharges. Through these openings the ulcer was washed out daily with salt solution, and then fed with Bovinine by a medicine dropper, without removing the dressings, until January 7th. The graft was then found firmly adherent, and from that time until entire healing was fed hourly with Bovinine by the mother, applying it from a saturated wad of cotton with a cotton carrier. January 30th, the failure of eighteen months of practice in skin-grafting, etc., had been remedied in twenty-three days.

CHRONIC ULCERS. SKIN-PROPAGATION FROM SKIN-SCRAPINGS, IN BOVININE.

By Dr. T. J. Biggs, Sound View Hospital.

The surface to be treated is previously prepared for a period sufficient to obtain a healthy condition of the wound. A surface of healthy skin or mucous membrane, from which the scrapings are to be procured, is prepared precisely the same as though a graft were to be taken therefrom. With a small dermal curette, the surface is very gently scraped to remove the exfoliating epithelia, and then once more washed with Thiersch solution and well dried; after which the cells to be transplanted on the wound surface are obtained by scraping, as in vaccination; without producing bleeding. Enough of these cells are removed to make a small deposit at four or five different points in a wound about two inches in diameter. Following this, strips of rubber tissue are applied, and the dressing is the same as in skin-grafting, remembering that after the first twenty-four hours, the use of Bovinine alone for nourishment and support of the new growth of skin is depended upon, to the exclusion of all other dressings.

Patrick M——; at Demilt Clinic; chronic traumatic varicose ulcer on right leg, which had been treated at various clinics without avail. After the ulcer had been gotten in a condition of healthy granulation, the skin scrapings were produced and deposited on the wound, as above described. The after-dressing of the wound consisted entirely of Bovinine. Two weeks after the application of the scraping, the ulcer had entirely healed.

SKIN PROPAGATION FROM CORN OR CALLUS SHAVINGS, IN BOVININE, FOR CHRONIC ULCER.

By Dr. T. J. Biggs.

John Polaskie, suffering from an ulceration over the crest of the left tibia, about two and a-half inches in diameter, called upon me, having heard of the Bovinine treatment for ulceration, and, feeling that he had exhausted all other measures, requested that some form of the method be applied to his case. I decided to use him as a trial case in the use of skin grafts obtained from the hypertrophied horny tissue of a corn. After treating for a few days with Bovinine, and applying antiseptic dressings to a corn on one of his toes, I then scraped away the outer softened portion of the corn, pared off three thin layers of horny tissue, and placed them at different points on the granulation surface, held in place by strips of rubber tissue and dressed with Bovinine. On the third day, the corn grafts showed that they had taken firm hold, and at the end of the third week, the ulcer had entirely healed.

ANOTHER CASE OF SKIN-PROPAGATION FROM POINTS OF CORN TISSUE, IN BOVININE.

By Dr. T. J. Biggs.

John Skolly; age 49; at Demilt Surgical Clinic; August 8th, 1894; ulcer was of fifteen months' standing; had been treated at four reputable institutions without success. It was now treated with Bovinine for three days, as described in former cases ; after which, five bits of corn shavings, about the breadth of a small pea, were distributed over the surface and secured by strips of thin rubber tissue, with proper dressings in Bovinine. At the end of two weeks, the patient was discharged, with only a small, soft, pink cicatrix in the place of the ulcer.

LARGE, AGONIZING TRAUMATIC ABRASION FREED FROM PAIN BY BOVININE DRESSING AND HEALED BY SKIN-PROPAGATION.

By Dr. T. J. Biggs, New York.

Jacob Smith; German; age 56; driver; came October 2d, 1895, with the superficial and deeper fascia pinched clean off the right forearm, down to the denuded muscle, for a space of 2 by 3½ inches; the arm having been caught between the wheel of a truck and an iron track rail. The

injury was recent, and excruciating pain was manifested by the poor fellow's cries during the preparatory treatment before applying Bovinine. For the first two days the wound was treated with wet Thiersch dressing, and on October 4th, commenced with a daily dressing of sterilized gauze, soaked in Bovinine and covered with oiled muslin and a bandage to bring about healthy granulations with a view to skin-grafting.

By the second dressing, the last of the pain had vanished, as usual, under the extraordinary physiological operation of Bovinine.

On the 11th, six bits of skin, of the diameter of a small pea, were disposed on the surface of the wound and secured and dressed by the improved method before described—that is, simply sewing a strip of sterilized gauze around the limb and feeding the grafts constantly with Bovinine through this dressing. In this case, the dressing was freshly soaked with Bovinine, twice a day, so as to keep the grafts constantly bathed in the vitalizing fluid, without disturbing their covering. This was continued until November 5th, when the wound was entirely healed, leaving a small pink cicatrix.

SKIN-GRAFTING, WITH AND WITHOUT BOVININE NOURISHMENT.

By Dr. O. B. Evans, of South Carolina.

For two years past I have used Bovinine, and found it all that it is represented. In all fevers, especially typhoid and malarial, I find it indispensable, staying up the vital forces at a critical period of the disease, and freeing the patient from the distressing sequences so often following these fevers. But in ulcers, gunshot wounds and extensive lacerations of the tissues, is where we also discover its magnificent power. I have successfully treated several ulcers of long standing that had resisted all other methods tried by physicians. Also what was pronounced cancer of the neck by several physicians in gunshot wounds it is superior to anything I have ever used in eighteen years of active practice. I will give you one case of gunshot wound, a type of many of its kinds that I have treated.

F. M., male, age 35; saw patient July 10th, with the entire "belly" of left forearm shot away by a charge of No. 4 shot. The load entered in above the wrist, ranging

through and upward, tearing away the "belly" and also sheathing of ulna. After dissecting out two-thirds of ulna, trimming the wound, and putting in a few stitches, I found the cavity left to be four inches long by three wide. The hand and arm being cold, I had placed it in warm bran poultices and kept there eight hours. The arm was then rendered aseptic, and cavity filled with Bovinine, and well dusted with iodoform, then wrapped in a bandage soaked in a 1 to 20 solution of carbolic acid. On the third day four grafts were planted On the seventh day the grafts were vitalized; eighth day, four more grafts were planted; tenth day, wound fresh and nice, no odor, no pus had yet been seen at any time, no pain, no swelling. But I had now used up my supply of Bovinine! On the twelfth day patient sent for me to come in a hurry. Found patient in pain, hand swollen, wound offensive, and bandages soaked with a dirty, greenish fluid. Grafts last planted, float, and granulations melting; in fact a rapidly-developing sepsis. I started a runner at once, sixteen miles, for Bovinine; the arm was cleansed, the loosened grafts taken out, and the wound well cleansed. In six hours I received a new supply of Bovinine; four new grafts were planted, the wound soaked with Bovinine, and bandages applied. On the thirteenth day no more pus, pain gone, slight elevation of temperature, no odor, swelling subsiding. The same dressing renewed daily. August 10th, cavity completely filled; wound looks like a slice of sound beef. In two weeks after the patient was well, with a slight scar, and he claims as good an arm as ever. It must be, for he is now working out a six months' turn on the chain gang.

The temperature during July and August was very high, yet you will observe that at no time did any pus appear, so long as Bovinine was freely used; but the moment it gave out, inflammation set in, and threatened to destroy not only all that had been done, but even the patient's life. Yet how quickly it all vanished when Bovinine was again applied—and never appeared again!

I was called to a case last December, and found that a bullet had passed through the abdomen. Shock was so great that I did not expect the patient to live twenty-four hours, but I put him on a teaspoonful of Bovinine in milk every three hours; also thirty drops of Bovinine injected into the bullet hole every three hours. This man lived fifteen

days. The autopsy developed the fact that the intestines were cut in eight places; yet there was very little odor, and no swelling of the abdomen.

"INCURABLE" BURN ULCERS HEALED BY BOVININE.

CHILD SCALDED NEARLY ALL OVER.

By H. B. Macklveen, Waverly, Iowa.

I have a case that has recovered from a condition that, under ordinary circumstances, would have had a fatal termination, and, in fact, eminent consultants said the patient must die.

May M——, age 6 years, in passing the kitchen stove knocked off a large pail of boiling soapsuds, and, being dressed in a calico gown, was tremendously scalded. Both arms, and almost the entire body, before and behind, from the mammary regions to the soles of her feet (she was barefoot), were scalded. When I was called and first saw her, she was writhing in agony and almost crazed, being unable to understand anything said to her. I used picric acid to relieve pain, and dressed in the old-fashioned way, and continued to do so for about a month, with old-fashioned results.

I saw that a fatal termination was inevitable, unless something else was done. I had been opposed by the consultants, in the plan I then tried, when at the beginning of the case I suggested it. But as progress was backward, I at last triumphed. I sterilized as near as practicable with hydrozone diluted. Then I transplanted from father, mother, brother and willing neighbors, about one hundred small superficial grafts about a quarter inch in diameter. I placed them so as to bridge over the large area at different points. Over each graft I placed a layer of gauze soaked in Bovinine, and let it project, so as to nourish the graft by capillary absorption of the Bovinine, under the silk which kept the graft moist.

In six weeks the wound was entirely healed. With Bovinine, used externally and internally, we won the day, and, without doubt, the child's life was saved.

SKIN PROPAGATION IN BOVININE ON OBSTINATE BURN ULCER HERETOFORE INCURABLE.

By Dr T J Biggs, New York.

P. Johnson, age 26; January 2nd, 1897; ulceration 3 by 4 inches on left forearm, result of a burn, had been treated in two leading New York hospitals, and also by three prominent city physicians in private practice; had only further enlarged, and cut down upon the underlying tissue. After curetting and cleansing, for twenty-four hours, it was depurated with peroxide-on-Bovinine, washed off with Thiersch's solution; and the surface was now in a healthy condition for skin-propagation from "point" of dermal tissue. Two grafts only, of circumference of a split pea, were snipped from the right arm, sterilized, and applied to the central part of the large ulcer, with the regular Bovinine dressing. Peroxide-on-Bovinine was again applied, and washed off with Thiersch; Bovinine dressings reapplied; the same [ultra!] proceeding repeated every day until January 12th; the grafts firmly fixed and growing, and new skin putting forth from the edges of the sore on all sides. Thereafter, a dressing of plain Bovinine only was applied daily: on the 27th, making twenty-five days' treatment, the patient was discharged.

BOVININE ON ULCERS FROM AN EXTENSIVE BURN.

By F. R. Blanchard, M. D. Lakeview, Mich.

(From the New York Medical Journal, August 7th, 1897.)

April 28th, 1897, I was called to see W. T. B——, age 43, who had been injured by the explosion of a mud drum. I saw him an hour after the accident, and found him suffering intense pain and wildly delirious; severely burned about the face, neck and upper portion of the chest, arms, and left hand, buttocks, thighs, legs and ankle.

I dressed the wounds with limewater and linseed oil four days, and then a dressing of plain vaseline was substituted.

May 22nd, twenty-five days after the accident, the wounds were all healed except those of the calf and ankle of the left leg: on the calf was an ulcer eight inches long by four inches wide, and on the ankle a strip two inches wide, running nearly around the leg, both having a very unhealthy appearance, with deeply cut edges. I concluded it would

be necessary to try skin-grafting, but wished first to get a healthy granulating surface. It was then I conceived the idea of treating it with Bovinine.

May 23rd: I first cleansed the ulcers thoroughly with carbolic solution, then saturated plain aseptic gauze with Bovinine and covered the ulcers, over this gutta percha tissue and wadding. The following morning when I removed the dressings there was no pus, and healthy pink granulations were springing up over the ulcers. I changed the dressings every twenty-four hours, and could see a rapid improvement each time, the new skin extending in more and more from the edges. Improvement was so rapid I concluded grafting would not be necessary, and continued the Bovinine dressings.

June 4th, twelve days after beginning these dressings, the ulcers were entirely healed.

One thing noticeable with the treatment was the absence of pain. Before I used it the ulcers were very painful, but after applying the Bovinine dressing there was immediate relief, and the patient experienced no more pain.

LARGE EIGHTEEN MONTHS CHRONIC ULCER, SKIN-GRAFTED.

By Dr. T. J. Biggs, Sound View Hospital.

Sam W——, South Norwalk, Conn.; age 38; case of Dr. B——; February 1st, 1899. In consultation found an ulcer of eighteen months' standing, result of a burn on the left leg, over the calf; size six and a-half by seven inches, and deep; had been treated by six physicians, and three times unsuccessfully skin-grafted; almost every kind of application had been employed, but had steadily grown worse. Patient was now chloroformed, the ulcer thoroughly curetted, depurated with Bovinine and hydrozone and Thiersch's irrigation, and the wound dressed with iodo-Bovinine; this procedure repeated every three hours. February 4th, finding the ulcer in healthy condition, six small grafts, about the size of a split pea, were taken from the patient's legs and arms, and deposited on the ulcerated surface at intervals of about half an inch; over them one thickness of gauze was sewed around the leg. The leg was put in a Kelly pad, and kept thoroughly wet with Bovinine. February 9th, removing the gauze carefully, I found all the grafts firmly adherent and already beginning to extend

The wound was now dressed with Bovinine pure, three times a day. March 1st, Dr. B. brought the case to see me. The wound had entirely healed, leaving a soft, pink scar.

LARGE FOUR YEAR OLD ULCER, SKIN GRAFTED.

By Dr. T. J. Biggs, Sound View Hospital.

Henry G——, Greenwich, Conn.; age 26; called by Dr. C—— to see the case. January 9th, 1899. Ulcer of four years' standing, the result of a burn, situated on outer aspect of right forearm; size four by five and a-quarter inches. This ulcer had been treated at two hospitals and by three physicians, and had been skin-grafted three times, but all this had been stubbornly resisted. I suggested curettement, but the patient objected to an operation of any kind or to taking an anæsthetic; hence the next best thing had to be done. Sensation was deadened by spraying chloride of ethyl, and the ulcerated surface was thoroughly covered with 25 per cent. solution of pyrozone; then irrigated with Thiersch's, and dressed with iodoform-Bovinine. The nurse was instructed to change the dressing, first applying the pyrozone, every three hours. February 3rd, found the ulcer in a healthy granulating condition. Bovinine pure was now ordered as a dressing, to be changed every three hours. February 14th, again found the ulcer healthy, and healing from the edges. I now determined to skin-graft. Six grafts were taken from the patient's thigh, about the size of a small bean, and placed at intervals of half an inch on the surface of the ulcer. As in the latter cases, a thin layer of gauze was sewed firmly around the arm to hold the grafts in place, and the arm was kept on a rubber sheet, and the nurse was ordered to keep it wet with Bovinine. February 20th, I removed the gauze and found the grafts all firmly attached, except one. Bovinine pure, as a dressing, was continued, three times in twenty-four hours. March 7th, Dr. C. brought the case to see me, the wound had entirely healed, leaving hardly the trace of a scar; simply a whitish discoloration.

SKIN-GRAFTING OF CHRONIC ULCERATION.

By Dr. H——, Boston, Mass.

Ellen Murray; age 27; October 12th, 1896; forearm denuded for a space of five by two and three-quarter inches by ulceration consequent upon a burn received six months

previous; under the various usual applications the sore had refused to heal. After preparing by depuration, seven pin-head points of skin were distributed over the wound, and dressed with Bovinine in gauze, changed daily. At the third dressing the grafts were found all firmly adherent and growing; which continued, under same treatment, until the wound was entirely nealed and covered with soft skin, November 27th, 1896.

BOVININE DRESSINGS IN SERIOUS ACCIDENTS.

By Dr. W. W. Gleason, Attleboro', Mass.

Not long since a workman in one of the large jewelry shops here was brought to me with his leg badly cut to the bone, a gash more than a foot long, being also badly burnt by the friction of rapidly-revolving emery wheel. I cleansed the wound carefully, kept a Bovinine dressing continuously applied, and to my surprise, in five days the wound was practically healed.

BONE NECROSIS.

The healing of ulcers of the most obdurate character by plain Bovinine dressing after Bovinine-peroxide depuration, without curretting or skin-grafting, is really a greater advance on the hitherto prevailing practice than the successful surgery with Bovinine treatment, which we have placed in front on account of the livelier interest attaching to the marvels of skin-grafting in Bovinine. But we postpone the mass of those simpler, and therefore really more remarkable, cases, in order to make room here in the foreground for the equivalent yet more striking process of rebuilding *Bones* that have rotted away; employing either pure Bovinine only, or packing the shell with sponge saturated with Bovinine, which speedily becomes bone. Above all, however, the solid repair of a trephine opening in the skull at Sound View Hospital, by simple applications of Bovinine, astonishes surgeons who have seen it. And yet, it is far less credible to fill a hole in a healthy skull with a new growth of Bone, then to do the same in a case of foul necrosis, that has eaten through bone to marrow, and is pouring out corruption through a sinus.

BONE RECONSTRUCTION.

FRACTURE OF PARIETAL BONE: DEPRESSED PLATE REMOVED, REPLACED, AND RECOVERED WITH SCALP.

By Dr. T. J. Biggs, Sound View Hospital.

Emma Carr, Boston Mass.; age 29; came on July 6th, 1898. One year before, while riding a bicycle, was run into by a wagon, the shaft striking the right side of her head and producing a depressed fracture of the parietal bone, over the fissure Rolando, which resulted in aphasia and aphonia, with gastro-intestinal disturbance. On the 7th, a button of bone was cut out at the site of injury, revealing the inner plate pressing down on the brain. Raising this, the irritated and inflammed dura mater was treated with Bovinine pure, applied through a medicine dropper. Meanwhile, the button of bone was put into a closely-sealed bottle of Bovinine and salt solution, kept at a temperature of 90 degrees by an alcohol lamp. Application of Bovinine to the dura mater was continued every two hours for three days, by which time the area of inflammation had entirely disappeared. The button of bone was then taken from its Bovinine bath, washed in hot Thiersch's, re-inserted where it came from, and wired securely in position with four silver wire sutures. The surrounding periosteum was dissected up and brought over on the reinstated button of bone, secured there by sterilized catgut sutures crossing from side to side, and then dressed with iodoform-Bovinine. This dressing was changed every two hours until the 12th, when the catgut sutures had become pretty well absorbed, and the remaining portions were removed. The periosteum was found firmly adherent to the reinstated button of bone. and repair proceeded rapidly and thoroughly. On the 20th the silver-wire sutures were removed, and the scalp was now dissected up and brought over the bone, which had become covered with periosteum and firmly adherent all around in its place. The edges of the scalp were brought in apposition by eight silk sutures. On the 27th these sutures were removed, and on August 2nd, 1898, the patient was discharged; the aphasia and aphona having entirely disappeared, and the gastro-intestinal disturbance was well. Bovinine having been taken internally from the first, be-

ginning with a teaspoonful, and after ten days a tablespoonful every three hours, the patient had gained 5½ pounds in the four weeks under surgery.

[This case, as one among many to the same effect in the application of Bovinine to bone lesions of every degree, will be interesting to the profession as far as it may come to their notice, in evidence that, instead of throwing away the button of bone and leaving the gap in the skull to a skin covering or artificial plate, there is no difficulty or doubt of success in re-engrafting and renovating the skull or other bones by the aid of topical Bovinine nourishment.]

RE-CREATION OF REMOVED SKULL BONE BY TOPICAL BOVININE SUPPLY

In view of the unvarying success of topical Bovinine supply in the healing and repair of diseased bone, it is all the more to be expected—although to most persons it will seem still more startling and incredible—that a large trephine opening in the healthy skull or other bone could be directly filled up with new and solid bone by the same simple agency without plugging or grafting. The first instance of such repair of a trephine perforation was performed by Dr. T. J. Biggs, the case being so novel and important, the technique is reproduced in detail below. His previous trephinings had been repaired by replacing the button of bone in the perforation it had left, and feeding around it with Bovinine. This was an entirely new thing in surgery, and a very important contribution to human welfare; the best previous expedient for the protection of the uncovered brain having been the mechanical attachment of a thin metallic plate over the dangerous opening—the plate itself being almost as dangerous still, in case of accident.

TREPHINE FOR EPILEPSY. BOVININE REPAIR OF SKULL.

By Dr. T. J. Biggs, Sound View Hospital.

Matthew D——, Stamford, Conn.; age 28; January 15th, 1899; diagnosis, epilepsy. About three years previous, playing baseball, patient had been knocked senseless by a blow over the left superior orbital arch, remaining so for nearly an hour. A few weeks later, daily fainting spells had come on, and this was followed in two months by regular attacks of *la petit mal*. Although attended constantly by

physicians from the beginning, his condition gradually developed into a well defined case of epilepsy. He was taken to New York and examined by various specialists, and their suggestions were carefully followed, but without avail his condition steadily growing worse. At the time I first saw him, as above stated, he was having an average of four fits a week; the sight of the left eye was badly effected; his general physical and mental condition was so bad that he could do no work, and could go nowhere without the care of an attendant; and so discouraged was he that he said he wished he could die.

I concluded, from a careful examination, that this trouble was due to pressure on the brain, resulting from the blow received three years ago, and that an operation was the only thing that could give promise of relief. To this he readily consented; but to make doubly sure of the cause, and also to locate it accurately, on January 18th, assisted by Dr. Lloyd, of the New York Post Graduate School, I made a thorough fluoroscopic examination of his head. Both Dr. Lloyd and I distinctly perceived a line of opacity at the site of the former injury, which I believed conclusively proved my diagnosis.

The patient's condition of debility and disorder being such as before mentioned, I determined to build him up by a course of preparatory treatment before operating, and put him on a wine-glassful of Bovinine in milk every three hours. January 31st, assisted by six of my colleagues, I performed under anæsthesia, the following operation

Over the sight of depression, I made a trap-door flap of the fasciæ and muscles, down to the periosteum. This was carefully dissected back, and following this I made trap-door flap of the periosteum, and, with the largest-size trephine, cut out a button of bone: and finding the dura mater adherent at one point to the bone, this was carefully dissected off, and the button of bone removed. Examination of the button showed visible depression, although the brain was found to be in a healthy condition otherwise.

To be certain, however, that I had located the exact point of lesion, I pressed my finger on the point where the dura had been attached to the bone; and, although the patient was under profound anæsthesia, the pressure produced a well-defined epileptic fit.

The wound was now purified with hydrozone on Bovinine, and gently mopped out with Thiersch solution. Two flat strips of a quill were then laid across the opening, the ends resting on the bone on either side to prevent depression and adhesion of the periosteum, when replaced, to the dura. The flap of periosteum was then brought down, and stitched all around with the finest catgut to that from which it had been separated. On the right side, the ends of the quills were allowed to project beyond the stitches. The flap of fasciæ and muscles was not brought down at this time; the purpose being to feed the periosteum on both sides with Bovinine through a slit, so as to form new bone. To this end the head was covered with a canopy of Thiersch-wet gauze, and Bovinine was applied to the periosteum every two hours. Continuing this procedure up to February 14th, at this time the periosteum had become so filled with bone cells that I considered it safe to remove the quills; and as it did not collapse at all, I decided to bring down the flap of fasciæ and muscles. This, after freshening the edges, was stitched in place with a buried suture of silk, and the wound was dressed with Bovinine pure. This, healed by first intention, and on February 22nd the suture was removed. Bovinine internally was still continued as at first. The patient had now improved greatly in both physical and mental condition; had gained in weight and strength; his memory had greatly improved; the sight of left eye was already normal; and he had not had a fit since the operation.

Although still retained in the hospital for study of his case, he was discharged from treatment on March 23rd, 1899.

And at this time, an examination over the site of operation showed that new bone had formed over the opening, with perfect solidity, as firm to pressure as any part of the skull.

The rapid and entire re-creation of skull throughout the trephine opening by the constructive powers of applied Bovinine; the perfect success of the novel and delicate technique of repair; and the immediate cessation of the fits and mental symptoms on the removal of a minute projection of bone which had formed over the brain, are points of surpassing interests to surgeons.

BONE NECROSIS.

By Dr. R—— New York.

Martin Carrigan; age 40; June 14th, 1897; necrosis of the distal phalanx of the left forefinger, entire posterior surface necrosed and the bone denuded of periosteum; large accumulation of pus The patient had been to several institutions, at all of which he was refused any treatment short of operation, as absolutely necessary. I quite agreed with the rest, but he stubbornly rejected it. The necrosed tissue was now thoroughly removed, the wound sterilized and depurated with the Bovinine-peroxide reaction, then packed with gauze saturated with iodoform-Bovinine, and dressed. After twenty four hours, this was repeated and the wound repacked with pure Bovinine in gauze. Still repeating the treatment daily until June 20th, the bone was then found to be restored and completely covered with periosteum. July 6th, the case was discharged in perfect repair; the finger almost normal in appearance.

NECROSIS OF ALL METATARSAL BONES WITH FOUR SINUSES. CONDEMNED TO AMPUTATION

By Dr. T. J. Biggs, Sound View Hospital.

Victor E——, Stamford; Swede, age 39: July 12th, 1898; a large opening in the dorsal surface of the foot had been made by the surgeon in charge, and a cellulitis had begun. I introduced a probe on the dorsal side, and found four sinuses: one directly through the foot, opening out on the plantar side; another leading back as far as the os calcis, another extending back to the right cuneiform bone; and a fourth running directly into the body of the astragalus. The metatarsal bones seemed all to be affected with necrosis. The wound was exuding large quantities of purulent matter, and the patient was suffering intense and constant agony.

Sixth months before he had stepped on a nail, driving it through his foot. In spite of usual treatments, the wound soon showed decided infection. A surgeon was called in, and of course, proceeded to drain the wound; but made the mistake of opening the dorsal instead of the planter surface, in consequence of which the wound was but poorly drained. An opening occurred spontaneously on the plantar side; the condition steadily grew worse, and on July 11th the surgeon told the patient that the only thing to be done was

to amputate immediately. Instead of this, the patient decided to try another surgeon, and on July 12th was taken from his house to Sound View Hospital at 8 a.m., and at 8.30 the late surgeon arrived at the house with his instruments to take off the limb, but the bird had just flown.

An incision two and a half inches long was made on the plantar side of the foot, and another, two inches long, on the dorsal side. The wound was then thoroughly scraped, and all points of necrossed bone removed; taking away half of the metatarsal bone. After the cavity was thoroughly cleaned out, I could carry my index and middle fingers together clean through the foot. It was now ready for final depuration and dressing; two ounces of pure Bovinine were injected through the cavity, followed by two drachms pure hydrozone (I having determined on this substitute for peroxide of hydrogen for purposes of depuration generally hereafter, as being stronger in oxygen, and so giving more perfect effects). After the reaction had ceased, the product was washed out as usual with plain Thiersch, the cavity was dried, and packed with iodoform-Bovinine gauze, an ordinary dressing being applied to the foot. Patient was put to bed, and in an hour and a-half later was sitting bolstered up sipping a little Bovinine and milk, and entirely free from pain. Nurse was ordered to give him a teaspoonful of Bovinine in milk every hour.

The wound was thus dressed regularly until August 26th, and thereafter the excavated bones and flesh were treated with pure Bovinine dressings, the wound healing rapidly and firmly, and the bone cavities filling up, without interruption.

Now, a very remarkable thing was observed: the section of metatarsal bone removed had become entirely replaced by new bone; all cavities were filled, and the bone surfaces were entirely covered with healthy periosteum. October 20th, the patient was discharged, with two perfectly sound and normal feet, and 24½ pounds of new and additional flesh.

All through the treatment, patient experienced no pain, and immediately after the first application of Bovinine, the cellulitis entirely subsided.

DESPERATE TRAUMATIC CASE OF BONE NECROSIS.

By Prof. Wm. A. White, M.D., Tufts' College Medical School, Boston. Mass.

(Abstract from Atlantic Medical Monthly.)

The patient, a lumberman, had cut his foot with an axe, from the base of the second metatarsal through the middle cuneiform into the scaphoid bones. The cut measured two and a-half inches in length, and deep enough to split the middle cuneiform in two. Dilatory treatment and uncleanliness had resulted, by the sixteenth day, in a condition apparently fatal to the preservation of the foot. The injured bones were found to be necrosed and very loose, and the deep, poisoned wound in a state of exuberant suppuration. All the tarsus bones had to be removed, except the os calcis and astragalus and part of the cuboid; also the base of the first metatarsus was removed. The cavity was curetted and sterilized, packed with iodoform gauze, and left for three days, after which the cavity was packed with iodoform gauze soaked in Bovinine. By the thirty-first day of this treatment, the patient was walking with the assistance of a cane, and five days later left for his native Italy, where he is since reported regularly at work on a farm, and "not much lame."

ULCERATION AND NECROSIS OF BONE.

By Dr. T. J. Biggs, New York.

Ellen Sweeney; age 24; at New York Polyclinic; October 29th, 1893; felon of the right index finger; extensive phlegmonous inflammation, the flexor tendon for about three inches of its length being found to consist of one long slough, and was snapped in half without being submitted to undue tension. The pus had burrowed upward to almost the centre of the palmar surface of the hand and in depth to the bone itself, which was denuded of periosteum for almost its entire circumference. It was so devoid of an appearance of healthy bone that the patient was instructed to return the next day for amputation of the finger. But physiological treatment was tried instead.

The sloughing soft parts were scraped away, including almost the entire length of the flexor tendon of the index finger, and leaving an open wound about four inches in length and three-quarters of an inch in breadth, leading down to the bone at the bottom, exposed and denuded of

periosteum. There was no discernible bleeding of the surface of the bone or variation from the general darkish hue which indicated an almost total lack of nutrition. For twenty-four hours the wound was treated antiseptically, and subsequently, the only application employed was the preparation known as Bovinine. Daily, the cavity was filled with Bovinine, and an outer covering lightly applied. The bone and surrounding soft tissues progressively regained their normal appearance, and the process of repair was uninterrupted from that time on, and the finger is now fairly serviceable.

EXTENSIVE NECROSIS OF TIBIA.

By Dr. T. J. Biggs, Sound View Hospital

Will Mullins; Bridgeport, Conn.; age 38; September 30th, 1897; necrosis extending from the middle of upper third to the middle of lower third, in the shaft of the tibia, though not very deep. Patient was put to bed October 1st, and prepared for operation. On the 7th, the necrosed cells were entirely removed with bone chisel and mallet; the cavity was touched up with 25 per cent. pyrozone, injected with the Bovinine-peroxide, and washed out with Thiersch's solution; then packed with strips of bi-sterilized gauze, saturated with Bovinine. The cleansing and packing were repeated twice a day until the 19th, then once a day to November 2d; the patient taking all the time a tablespoonful of Bovinine in grape juice every three hours. On November 4th, the cavity being nearly filled with new bone, Bovinine direct was substituted for the Bovinine packing. On the 5th, the wound and cavity being absolutely healthy, the edges were brought in apposition by strips of rubber plaster, and covered with a Bovinine dressing. On the 15th, the wound was entirely healed, and on the 16th the patient was discharged.

DEEP AND EXTENSIVE NECROSIS OF TIBIA.

By Dr. T. J. Biggs, Sound View Hospital.

Louise G——, Bridgeport, Conn.; age 37; October 26th, 1897. Tremendous necrosis of tibia, extending from about the middle of the lower third to centre of upper third, resulting from the kick of a horse. Had been treated by a succession of physicians, without result; the last advising

operation, for which the patient now came to this hospital. The necrosed portion of bone proved to be fully half an inch in diameter, reaching to the medullary canal, and taking in almost the entire anterior surface of the bone. The periosteum was further badly diseased in spots.

After carefully dissecting the periosteum back, the necrosed bone was thoroughly chiselled out, and the cavity sterilized for forty-eight hours, then depurated with peroxide of hydrogen on Bovinine, and packed with gauze saturated with pure Bovinine. This process and application were renewed regularly until the 15th, when the cavity had become entirely filled up with new bone, which was completely covered with new periosteum.

NECROSIS OF PATELLA, SPONGE GRAFTED.

By Dr. T. J Biggs, Sound View Hospital.

Anna L——, Glenbrook, Conn.; age 19; June 8th, 1898; had been operated on by a physician, but the necrosis only extended. Following operation, the bone cavity had been treated with various injections and packings, but with no effect.

Patient was now put to bed, secretions regulated, and on July 10th, the necrosed cells were removed; the cavity was depurated by the Bovinine-peroxide reaction, etc., and packed with Bovinine gauze, twice in twenty-four hours. So much of the bone had been removed that a mere shell only remained, and on July 11th, after again thoroughly sterilizing the wound and cavity, a thin sponge graft was inserted, Bovinine dropped on it, and dressing applied; repeated every twelve hours to the 18th, when another graft was laid over this and treated in the same way. On the 26th, this had become vitalized bone, filling the cavity, or shell, entirely and solidly. August 1st, the stitches were removed, wound having entirely healed.

TRAUMATIC NECROSIS OF KNEE PAN.

By Dr. T. J. Biggs, Sound View Hospital.

Bridget Hines; age 49; May 12th, 1897; necrosis in centre of right patella, result of traumatism a year ago. Had been treated at two institutions, growing steadily worse. May 13th, the necrosed cells were removed, the cavity sterilized, packed with gauze, soaked in Bovinine, and

dressed. The Bovinine dressing was changed twice a day, and later once a day. June 3d, patient was discharged, the cavity having filled up with new bone, and new tissue being formed over it, with a soft, pink scar.

OLD BULLET IN HEAD OF TIBIA. CAVITY REPAIRED BY APPLIED BOVININE.

By Dr. T. J. Biggs, Sound View Hospital.

Pat Walsh, Bridgeport, Conn., September 8th, 1897; age 31; bullet in head of tibia.

Examination per X-ray revealed a 38-calibre ball in the head of the tibia. Patient was shot two and a half years ago, and during this time had suffered greatly from pains in and around the knee joint. Until the 22d, preparatory treatment was given; and on the 22d, after etherization, an incision was made, the periosteum was incised and raised for two inches, and a small-sized trephine opened up thoroughly the head of the bone. Thanks to the X-ray, the bullet was found right in line with the opening that had been made in the bone. The ball was removed intact, the cavity was thoroughly cleansed by the Bovinine and peroxide of hydrogen process, and washed out with Thiersch solution; after which it was packed with iodoform-Bovinine gauze, changed twice in twenty-four hours, until the 25th; after which, no sepsis being present, the packing was discontinued, and Bovinine pure was dropped into the bone cavity twice a day; the cavity being first thoroughly depurated, as at first, every time. On the 30th, the bone had become filled up and entirely covered with periosteum.

A remarkable fact in this case was the peculiarly rapid filling in of new bone by the topical nourishment, occupying barely one week.

NECROSIS OF COCCYX.

By Dr. H——, New York.

Frank Bulmer; age 52; had been operated on December 6th, 1896, for necrosis of coccyx, resulting from traumatism several years before. At the present time, the resulting abscess was discharging through a small sinus leading down to the middle segment of the bone and to a superficial necrosis. An incision was made, exposing the necrosed surface, which was first thoroughly scraped off

and the cavity sterilized with Thiersch's and peroxide-on-Bovinine. The cavity was then packed with gauze, saturated with Bovinine, renewed every day until December 26th, when the bone was found restored to normal condition, the periosteum completely restored.

BONE NECROSIS

By Dr. L——, Cincinnati, Ohio.

Jim Logan; age 29; October 19th, 1896, necrosis of left tibia, three and a-half inches long. Necrosed portion of bone removed. cavity cleansed and sterilized, then packed daily with Bovinine in gauze. By November 20th, the cavity was filled up with new bone, and nearly covered with periosteum. December 2d, periosteum complete. December 14th, wound healed, with a pink scar, and no depression of surface.

NECROSED BONE, CONDEMNED TO AMPUTATION.

By Dr. Brown, Athol, Mass.

While practising in North Brookfield, a young man with a pronounced case of osteomyelitis of the tibia, very much diseased, by my advice was taken to the Worcester Hospital. It was decided to amputate, but amputation was postponed, and, instead, an operation was had in which all the dead bone possible was cut out and dressings of Bovinine made. The leg healed fully, and the man is now about on his own legs. I understand that Dr. J. B. Rich, of Worcester, was the surgeon who suggested the use of Bovinine in this case.

NECROSIS OF TIBIA.

By Dr. T. J. Biggs, New York.

Jerry Dillon; age 50; at Demilt Clinic; May 3rd, 1895; necrosis of tibia, five inches long and nearly through. In six months had suffered four operations with removal of bone (very little of it being left), and all the regular surgical resources had been employed without arresting the decay. The remnant was now a mere shell. Necrosed matter removed; cavity sterilized and packed with iodoform in gauze; later with iodoform-Bovinine, and then with pure Bovinine, every other day, until filled up with new bone and covered with sound flesh, July 6th.

TRAUMATIC NECROSIS OF BONE. SPONGE-GRAFTED WITH BOVININE.

By Dr. J. J. Biggs, New York.

John O'Brien, 195 Mulberry Street, New York City; age 56; October 3rd, 1893, deep necrosis on anterior surface of tibia, about three inches long. The wound was rendered aseptic, and the necrosed tissue removed, leaving a mere shell of bone. The cavity was gradually packed, at intervals, with thin layers of sliced sponge soaked in Bovinine and kept so, until the sponge vitalized and became solid bone, filling up the cavity and case discharged December 10th, 1893.

NECROSIS OF BONE

By Dr. T—— Covington, Ky.

James Tandy; age 31. October 3rd, 1896; necrosis of the os calcis of the left foot. The cavity was cleaned out, depurated by peroxide of hydrogen on Bovinine, dried, and packed daily with sterilized gauze soaked in Bovinine. The cavity filled up rapidly with new bone, and by November 5th was covered with periosteum. What is most significant of the reparative power of the supplied Bovinine is the extraordinary fact that an excavation of at least one-third of the bone had been refilled with new bone, within very little of the normal size.

NECROSIS OF MASTOID AND OSTEOMYLITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Annie B——, South Norwalk; age 30; February 3rd, 1898. Tubercular osteomyelitis of left mastoid. Four holes were drilled down into the body of the mastoid process, going deep below the diseased cells, and converging to a junction below them, so that both the clearing and the healing applications going into either of these channels would flow out through all the other three. A Bovinine-peroxide injection was forced through the bored channels, and washed out with Thiersch's solution. Bovinine was then dropped into the holes, and they were packed with gauze saturated with the same. This entire process was repeated twice a day to the 17th, when the diseased parts were found to have been separated wholly from the healthy body of bone, and were lifted out in a mass, leaving the whole interior a healthy granulating surface. The

cavity was washed out with Thiersch and dressed with Bovinine twice a day to the 25th, when it had filled with new bone March 1st, the wound was entirely healed over, and the patient discharged.

NECROSIS OF MASTOID PROCESS.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. C——; age 29; first seen April 1st, 1896, in a New York hospital, after an operation for a mastoid abscess, which had consisted in chiselling out the bony cells and packing the cavity with iodoform gauze; result, necrosis at the depth of the cavity of the mastoid process. So much bony tissue had been removed that it was perilous to excavate farther. After the cavity was thoroughly cleansed, it was packed with gauze and saturated with Bovinine, and the cleansing and packing were repeated down to May 3rd, when last seen, and the necrosed space was nearly filled with healthy bone, the periosteum forming over it, and the lips of the flesh wound in a healthy condition.

BONE NECROSIS AND SINUS.

By Dr. T. J. Biggs, New York.

Jennie Alexander; age 29; January 7th, 1897; necrosis of right maxillary bone, result of decayed teeth, and penetrating an area of one by one and a half inches. A sinus had opened externally, down to the depth of the necrosed cavity. An incision was made over the necrosed area, cutting through the sinus, and the necrosed portion of bone was removed. The cavity was then sterilized, and packed with gauze soaked in iodoform-Bovinine, for twenty-four hours; depurated with peroxide-on-Bovinine, and packed with gauze soaked in plain Bovinine; repeated daily. February 1st, the cavity was filled with new bone and covered with periosteum; February 7th or at just one month, the patient was discharged in perfect repair, showing only a soft, pink scar, with no depression of surface.

ABSCESS AND NECROSIS OF MASTOID PROCESS.

By Dr. T. J. Biggs, New York.

Mary Casey; age 28; June 29th, 1896; abscess of the left mastoid process, which had been treated at several institutions. The abscess dipped down well into the cells

of the mastoid process, revealing an extremely necrosed condition. The nec sed tissue was removed, the cavity well washed out and _acked with bichloride gauze. After twenty-four hours, and after again thoroughly cleansing the cavity, it was packed with gauze soaked in iodoform-Bovinine; repeated to July 6th, followed by pure Bovinine dressings, till the 12th, when the patient was discharged, the healing being complete.

PARONYCHIA OF THUMB.

By Dr. T. J. Biggs, Sound View Hospital.

Mr. A—— K——, Greenwich. Conn.: age 30; May 14th, 1898; paronychia of thumb, result of a blow; thumb fearfully enlarged, large accumulation of pus, and suffering so intense that the patient had to be brought by three friends in a wagon, and was unable at times to refrain from crying out. Operation was performed under A. C. E. mixture, and the thumb freely laid open, depurated with the Bovinine peroxide and Thiersch, and packed with iodoform-Bovinine gauze. After etherization, to the time of discharge, the patient experienced no pain whatever, except that produced momentarily by the daily Bovinine dressing. Discharged June 2nd, 1898—a remarkably short time for a case of this class.

TRAUMATIC BONE NECROSIS.

By Dr. T. J. Biggs, Sound View Hospital.

Matilda Freyhoff; age 26; September 27th, 1897; necrosis of the first phalanx of left index finger, resulting from a blow causing a periostitis. The necrossed bone cells were removed, the cavity was sterilized, cleansed by the Bovinine-peroxide process, and packed with gauze soaked in Bovinine; this operation was repeated until October 7th, at which time the bone was completely filled and covered with periosteum.

BONE NECROSIS.

By Dr. T. J. Biggs.

Emma Robbins, 441 West 47th Street, New York City; age 30; at New York Polyclinic, December 2nd, 1893; necrosis of entire anterior surface of the first phalanx of index finger, the bone being wholly denuded of periosteum. Necrosed bone removed, wound packed with Bovinine, and repeated until healed, January 6th, 1894

TRAUMATIC NECROSIS OF RIBS.

By Dr. T. J. Biggs, Sound View Hospital.

John S——, Glenbrook, Conn.; age 34; February 24th; necrosis of left sixth and seventh ribs; result of a former operation for empyema. The lung and pleura had healed, but the sixth and seventh ribs were necrosed for about one and a-half inches in length, and half way through the shaft of the bone. I advised an immediate removal of the necrosed bone, but this the patient refused to allow. I therefore decided to try and rejuvenate the bone by means of supplied Bovinine. The wound was depurated with the Bovinine and hydrozone reaction, followed by Thiersch s irrigation and Bovinine dressing, repeated every two hours. March 19th the bones were covered with periosteum and the wound entirely healed, leaving hardly the trace of a scar.

COMPOUND FRACTURE OF HUMERUS.

By Dr. T. J. Biggs, Sound View Hospital.

Joe Pettig, Stamford; Slav; age 30; September 29th, 1898; compound fracture of humerus resulting from a violent blow. September 30th, assisted by Drs. Phillips and Hoyt, I cut down over the humerus, from the insertion of the deltoid down to the lower end of the shaft. Six spiculæ were removed. The wound was then thoroughly washed out, andthe bones were drilled and brought together in three places with silkworm gut. After depurating the cavity with the Bovinine-hydrozone reaction and Thiersch's wash, and thoroughly drying it, a piece of gauze was packed gently all around it at the different point of fracture, carefully adjusted, and Bovinine pure was poured into the wound; then an ordinary bandage was placed over it. Over the splint and dressing was applied a plaster of Paris bandage, which was allowed to dry, and a trap-door was cut through it to admit the application of Bovinine every hour, to keep the gauze within moist. All this was repeated again and again until October 10th, when the gauze packing was discarded and Bovinine pure was directly applied, dropping it into the wound once in two hours, and depurating over again twice in twenty-four hours. By the 25th, the bones had become firmly reunited; and on the 31st, the wound was entirely healed, and the case was discharged.

Points of great interest in this case are the short time in which the bones thoroughly united and wound healed, usually six weeks being required for ordinary transverse or oblique fractures to unite; while here there were three points of fracture and compound at that, yet the whole repair was completed in thirty-four days. I am convinced that if all fractures were treated by the open-wound method, using Bovinine to hasten repair, no such things as deformities or ligamentous unions need ever result.

COMPOUND FRACTURE OF HUMERUS; WITH SUPPURATION AND NECROSIS OF BONE.

By Dr. T. J. Biggs, Sound View Hospital.

George S——, Stamford; Russian; age 34 years; compound fracture of humerus; middle third; October 24th, 1898. It was a complete oblique fracture; the wound was foul and filled with pus, and a necrosis had begun at the end of lower fragment. The patient was put to bed, on a milk diet, the stomach and rectum washed out, and twenty-fours hours later, under chloroform, an incision five inches long, commencing at the insertion of the deltoid, was made; the wound was depurated with a Bovinine-peroxide reaction, and washed out with Thiersch's solution; the necrosed portion was removed; the ends of the bones were rounded and dove-tailed, drilled and brought in apposition, and held by silkworm gut.

A piece of gauze, saturated with iodoform-Bovinine, was wrapped around the bone at the point of incision, and the wound was packed with iodoform-Bovinine gauze, and the arm done up in splints. This procedure was repeated until November 30th, at which time the union was complete, and the wound virtually healed; the patient was able to use his arm, and was discharged within the week.

COMPOUND COMMINUTED FRACTURE OF RADIUS.

By Dr. T. J. Biggs, Sound View Hospital.

John Kalish, Stamford; age 30; July 6th, 1898. As the result of a blow, the bone was fractured in seven places, and protuding at three. In this case I carried the incision from the radio-carpal articulation to about two thirds the full length of radius. I carefully dissected down to bone, taking care not to injure any tendons, and then thoroughly sterilized the wound by the antiseptic reaction of hydrogen

peroxide-on-Bovinine, with Thiersch's irrigation. The edges of fracture were next brought into apposition and wired together; after which the arm was put in a plaster cast, with an opening left at the top to dress the wound through. Through this opening, Bovinine pure was applied every two hours, day and night, up to July 15th, when the wound was found to be in a healthily granulating condition. July 20th, three wire sutures were removed; the bones having fully, but not firmly, reunited. The plaster cast having been removed, the edges of the flesh wound were freshened and brought in apposition and secured, with the exception of a small space at about the centre to allow removal of the last wire suture. The arm was then put up in a pasteboard splint and carried in a sling. July 30th, the last wire suture was removed, and the opening of wound over it was closed with strips of plaster. August 3d, 1898, the wound had become closed, and the case was discharged.

I know of no case in the history of surgery of so rapid and thorough repair from such a condition as this; the treatment, when successful, usually taking at least two months in cases of compound fracture, whereas this case, under the reconstructive agency of supplied Bovinine, was completed in less than a month.

COMPOUND FRACTURE OF HUMERUS.

By Dr. T. J. Biggs, Sound View Hospital.

George Szlmnak, Stamford; Russian; age 34; November 8th, 1898; compound fracture about the middle of the shaft of the humerus; operation November 11th, performed as follows: An incision four inches long was made, beginning at the insertion of the deltoid muscle, which carried it through the wound in an oblique direction, so as to miss the musculo-spiral nerve. The wound was thoroughly cleansed with Bovinine-peroxide, and then washed out with Thiersch's solution; the ends of the fragments of bone were rounded off, brought in apposition, and, after being drilled, were held in position by silkworm gut. The wound was then packed with iodoform-Bovinine gauze, and dressed per technique of ulcer dressing. This was renewed every twelve hours, until November 24th, when Bovinine pure was substituted. December 6th, the bone was entirely

covered with periosteum, and was firmly and thoroughly united. December 20th, patient discharged, with his arm restored to its full usefulness. The rapid healing of this is unexampled, except in the two cases preceding, and was undoubtedly due to the local nutrition afforded by the Bovinine.

BOVININE REPAIR OF A DESTROYED ARM.

By Dr. ALBERT DUNLAP, Creston, Iowa.

October 23d, 1896, a man, 63 years of age, with the left forearm mangled out of the semblance of a limb, both bones mashed into small pieces, muscles hanging in shreds and torn loose from fascia, from wrist to elbow, and partly gone, the very tendons hanging out, in a remote rural locality, with the most unfavorable surroundings and no modern facilities or resources at hand; three hours already lost without a thing done since the accident; nothing then available but to put the strips of flesh and fragments of bone hastily in place, with splints and a wet dressing of boroliptol; after a long night ride to another patient, was able to get to my home for Bovinine, and return to apply it to the disintegrated limb just as it stood, instead of cutting it off at once, as the only allowable course according to all opinions. After sixteen days, not a drop of pus; the wound granulating healthily; looks exactly like a slice of fresh raw beefsteak; no pain; swelling all gone; the ulna already knitted and showing some firmness; the posterior surface of the radius has original shape, and is easily traced and each fracture detected; but this bone is not knitting, being crushed into little pieces for some four or five inches; the anterior surface especially seems to be ground up.

He lives at some distance from Creston, but writes that the arm has healed, and that he is able to use it. The last time I saw him was in the last of December, at my office, less than eight weeks after the accident. The bones were quite firm, and the external injury healed, except a spot of the size of a ten-cent piece. I made a new set of splints, as he came without any protection on the arm, and told him that he must wear them until I said take them off. But I understand, indirectly, that he kept them on only a few days, and has since continued using the arm.

MALIGNANT TUMORS (EPITHELIOMATA) EXTIRPATED AND HEALED BY MARGINAL INJECTIONS OF BOVININE.

EPITHELIOMA IN THUMB AND JOINT.

By Dr. T. J. Biggs, Sound View Hospital.

John Spaulding, New Haven, Conn.; age 30; August 28th 1898 epithelioma of left thumb. He was advised to have it removed by amputation, the growth having involved entirely the first phalange and dipped down into the joint and upper part of the second. To this he absolutely refused to submit, and assumed entire responsibility for the consequences under any treatment I might pursue. Here, then, occurred another occasion, or rather necessity, for advancing the proof of Bovinine treatment into a new and critical situation. Under chloroform, the growth was curetted out as far as possible, and the thumb was laid open posteriorly to the bone. Iodoform-Bovinine was injected at six points, five minims each, and the wound was dressed with Bovinine pure. Patient reacted nicely, and, outside of a little tingling, suffered nothing from the operation. Bovinine dressings were constantly repeated, and October 9th, the case was discharged.

The remarkable rapidity of obliteration and healing of such a growth, with the entire disappearance of all suspicious tissue, is, I think, without precedent.

EPITHELIOMA OF URINARY MEATUS.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. M—— J——, Stamford, Conn.; age 50; January 29th, 1898; thoroughly anæmic, with all the typical symptoms; loss of strength and vitality; an unusually deteriorated quality rather than quantity of hæmaglobin, and but half a normal count of red cells in the blood. Four months before, a little red growth, about the size of a pinhead, appeared on the left side of the outer lip of the urinary meatus. Her general condition then began to get rapidly worse, with loss of appetite, indigestion, and insomnia. Her physician snared off the growth, touched up the site with nitrate of silver, and gave her calomel to dust over it. It then began healing; but this was temporary, and the sore soon began breaking down and extend-

ing around the meatus, growing rapidly, with severe and constant pain and increasing weakness. My examination revealed the growth now entirely surrounding the meatus, and extending down on the upper portion of the labium minor.

I advised immediate operation, but this was refused. Nothing, therefore, remained, but to rely on topical and constitutional Bovinine treatment. As she could retain hardly anything on her stomach, I determined to nourish her largely by rectal injections of Bovinine. These, with Bovinine per mouth, were retained, and she enjoyed immediate improved surface circulation and feeling of strength. Meanwhile, the growth and surrounding tissues were thoroughly cleansed every day with Bovinine-peroxide reaction, followed by Thiersch's irrigation, and iodoform-Bovinine applied.

After much persuasion, she was induced to submit to injection of the growth with Bovinine, every other day, down deep in the growth and all around its edges, the outer surface being dressed daily with iodoform Bovinine. By the fourth injection, the growth began to shrivel and grow smaller; and on February 17th it separated from the surrounding tissues and came away, leaving a healthy granulating surface. This was now dressed daily with pure Bovinine, after cleansing with Bovinine-peroxide washed off with Thiersch solution. February 26th the patient was discharged, with the wound entirely healed, leaving a soft cicatrix. Her general condition had been restored almost to the normal; red-blood corpuscles very little short of full standard; hæmaglobin normal in both quality and quantity; appetite and digestion good; sleep good; and a gain of six pounds in weight.

The remarkable sloughing off of the entire epithelioma, leaving a clean, healthy field of repair, in the most exquisitely vulnerable of situations, commands the attention of the profession to the simple means and the easy success.

EPITHELIOMA OF EAR.

By Dr. T. J. Biggs, Sonnd View Hospital.

Henry L——; age 40; American; admitted to hospital April 10th, 1900. Diagnosis. Epithelioma of left ear; condition had existed for three months. During that time two plasters had been applied by so-called specialists, but with-

out any decided result. He had also had one operation performed at Roosevelt Hospital; but, in spite of this, the condition had returned. After a careful examination, I advised the removal of the entire ear. To this he would not consent, and agreed to assume all responsibility. I determined, after consultation with Dr. M., who brought me the case, to try Bovinine injections into the growth, and also at the line of demarcation between the healthy and unhealthy tissue.

On April 12th, two injections were employed, one of twelve minims, the other aboutten; the first one being injected right into the cancerous mass, and the second at the line of demarcation. Internally, he was given a wine-glassful of Bovinine every three hours in milk and lime water, and only a very light, easily digested diet allowed. Following the first injections, the patient suffered considerable pain, also some swelling of the entire ear.

On April 14th, three injections were employed, two into the mass and one at the line of demarcation. Severe pain also followed these injections, but there was very little swelling. The pain subsided in an hour, and the patient expressed himself as being unusually comfortable.

On the 16th, two injections were employed, one into the mass and the other at the line of demarcation. Some pain followed the injections, but much less than before, and this time no swelling.

On the 18th, four injections were employed, three into the mass and one at the line of demarcation. Little or no pain followed the injection, and no swelling was noticeable. At this time the growth, which had had the characteristic cancerous odor, now gave off little or no odor; and the discharge, which had been quite considerable up to the 16th, had greatly decreased.

On the 22nd, three injections were employed, followed by very slight pain and some little swelling.

On the 26th, two injections were employed, followed by slight pain and no swelling. At this time there was hardly a semblance of a discharge, and the growth was becoming dry and had separated from the healthy tissue. It resembled greatly a senile gangrene, the line of demarcation being fully as well pronounced in this case as in any case of gangerene I had ever seen. The ear was now dressed in Bovinine pure, changed every three hours, and

being cleansed twice a day with Bovinine, hydrozone and Thiersch's. This was continued up to May 4th, when the injections were again begun, three into the mass and one at the line of demarcation. Some pain followed these injections, and slight swelling.

May 10th, four injections were employed, three into the mass and one at the line of demarcation. At this time the cancerous mass had become thoroughly dried, and was almost ready to drop off.

On the morning of the 15th, when removing the dressing, the cancerous mass came away entirely, leaving a healthy, bleeding, granulating surface. This was thoroughly cleansed with Bovinine, hydrozone, and Thiersch, and dressed with Bovinine pure; the dressings being changed every three hours, and cleansings employed twice in twenty-four hours.

On the 20th it had healed, with the exception of a little spot about the size of a split pea. This was dressed with Bovinine three times in twenty-four hours, and on the 29th the patient was discharged, cured.

This case I know to be absolutely an epithelioma, as a section of it was examined by a prominent New York pathologist, and he verified the findings of my examination.

ELIMINATION OF CANCEROUS TISSUE BY BOVININE INJECTION AND DRESSING.

By Dr. T. J. Biggs, Sound View Hospital.

Mike K——; age 41; Irish. Diagnosis: Epithelioma of nose. Patient was brought to the hospital by Dr. R , July 22nd, 1900. This condition was of two years' standing, and during that time had been operated upon twice, and once had a plaster applied; but, in spite of that, it recurred, and at the time of my first seeing it involved pretty much the top of the nose, but, fortunately, did not seem to implicate the cartilage. I suggested operation, but this was positively refused, the patient consenting to any other course of treatment. I therefore, without any promise of relief to the patient, made up my mind to try deep injections of Bovinine into the cancerous mass.

On July 23rd, after freezing the cancerous surface with chloride of ethyl, I injected Bovinine into the mass, starting the needle two or three lines beyond the line of demar-

cation between the healthy and cancerous tissue, and carrying it well into the body of the diseased mass Half an hour later the patient suffered quite a little pain, but this wore away in a short time.

Internally, he was given a wine-glassful of Bovinine every three hours in milk.

July 25th, another injection of Bovinine was employed, and the wound dressed with Bovinine pure. Although the patient suffered some pain, it was considerably less than that following the first injection. A third injection was employed on the 27th. At this time it was observed that the cancerous mass was separating itself from the healthy tissue.

On the 29th, three injections into the mass were employed, and the entire surface dressed as before.

On the 31st, another injection was employod. This was followed by no pain at all. The cancerous mass now had become black, and the pathological picture greatly resembled that of semi-gangrene.

August 2nd, another injection was employed. At this time a piece about the size of a split pea came away, leaving a healthy granulating surface.

August 4th, another injection, and another on August 6th.

August 8th, when the dressing was removed, the entire cancerous mass came away, leaving a healthy granulating surface. The wound was now dressed with Bovinine pure, the dressing being changed three times in twenty-four hours.

August 15th, the wound was almost healed. Dressings were ordered now twice in twenty-four hours.

August 21st, the wound had entirely healed, leaving a soft, pink cicatrix, and the patient was discharged, having gained in weight and feeling splendidly.

The amount of Bovinine employed at each injection varied from five to fifteen minims. This case is of intense interest.

LARGE AXILLARY TUMOR. OPENED AND HEALED.

Dr. T. J. Biggs, Sound View Hospital.

Annie S——; age 24; Jewess. Diagnosis: Suppurative adenitis of the right axilla. Patient admitted to the hospital July 26th, 1900.

On examination, a large fluctuating tumor was found in right axilla. Patient had a temperature of 103½ degrees, suffered great pain, and as a result of this condition, which had existed for some ten days, had become greatly emaciated, and presented well-defined symptoms of general septicæmia. She was put to bed, secretions regulated, and June 27th, under anæsthesia, the tumor was incised, and a tremendous quantity of foul-smelling puss escaped, also considerable broken-down glandular tissue. The cavity was now injected with Bovinine pure, one ounce, followed immediately by an injection of a drachm of hydrozone; the lip of the wound held together, allowing reaction to thoroughly take place within the abscess cavity. This was repeated after a Thiersch's irrigation, and then packed with iodoform-Bovinine gauze. At the end of twenty-four hours the dressing was removed, and it was found that the cavity contained absolutely no pus, and seemed to be in a healthy bleeding condition. Cavity cleaned as before, and now packed with Bovinine pure. This cleansing and dressing were repeated every three hours.

On the 30th, the wound was in an absolutely healthy condition, and the patient had lost all her septic symptoms, felt strong, and enjoyed a good appetite.

It should have been mentioned that Bovinine was given internally from the onset, a tablespoonful every three hours.

August 3rd, the cavity of the wound being healthy and showing no discharge whatever, it was decided not to pack, but put a compress of Bovinine on. This was changed every four hours.

On August 18th, the wound had entirely healed, with the exception of a small space at the lower edge; Bovinine dressings continued twice in twenty-four hours.

On August 20th, she was discharged cured.

The point of greatest interest in this case is the almost immediate cessation of the formation of pus, under this treatment, in spite of the fact that so large a surface was involved in a locality where glands abound.

CASE OF ANTHRAX

Dr. T. J. Biggs, Sound View Hospital

Anna M——, Larchmont, N. Y.; age 32; March 10th, 1899. Diagnosis: Anthrax of neck. Patient had a well developed condition of this disease on the back of her neck. The tissue invaded had become soft, the skin gangrenous, and had broken down in numerous points, forming perforations, through which centres of suppuration appeared, giving it the appearance of a sieve. The general condition had suffered; had lost in flesh; was pale, thin and emaciated.

The entire service and cavities were depurated with Bovinine and hydrozone, and then washed with Thiersch solution, and, following this, "Thiersch-Bovinine" was injected hypodermically around the carbuncle at the line of demarcation between healthy and diseased tissue. Eleven injections in all were made, with ten drops each time. The surface was next dressed with "Thiersch-Bovinine," changed every two hours, and the injections repeated once in twenty-four hours, up to March 15th. At this time, the slough had separated and come away, leaving a healthy pink granulating surface. Dressings of Bovinine only were now employed up to the 28th of March, and from this time on, once every three hours. April 2d, the patient was discharged. There remained only a soft, pink scar, that was hardly noticeable.

CARBUNCLE.

By Dr T. J. Biggs, New York.

July 6th, 1895; John M——; aged 45; at Demilt Surgical Clinic; a large carbuncle, one and a half inches in diameter, on the back of the neck. The little orifices of the first stage had united in one large ulcer, from which there was a profuse discharge of dead cellular membrane. Great prostration, loathing of food, headache, and other signs of low febrile impression. The case had been treated by one of our well-known and excellent surgeons, with all the well-known medicaments, all failing to check the devouring spread of the infection.

Preparatory medical treatment was now commenced, and the next day, a tablespoonful of Bovinine in milk every two hours. July 10th, local treatment was commenced by gently curetting the wound and applying a wet

Thiersch's dressing, for three days. By that time the wound was in a condition to absorb the Bovinine dressing which was relied on to overpower tissue degeneration by vital reparation. Thenceforward, Bovinine only was applied, twice a day, with dressings and antiseptics, until August 9th, when the sore was completely healed.

Still another remarkable result—unheard of even in the rare instances where a case like this has been healed, hitherto, but a logical inference from the nature of the topical Bovinine treatment—was the renewal of the wasted tissue, filling up the place of the sore to the level of the surrounding flesh, and covering it, with but a slight pink cicatrix

EPITHELIOMA OF EAR.

By Dr. T. J. Biggs, Sound View Hospital.

Sarah M——, South Norwalk, Conn.; age 29; January 27th, 1898; growth on right ear, involving the entire lobe. Three months' previous treatment had only reduced the swelling, but the sore began to assume a malignant appearance, and continued growing. The patient was at this time highly anæmic by all the symptoms; the red-blood cells were only one-third of normal, while the white cells were in excess.

January 29th, commenced internal treatment with Bovinine every two hours, and topical treatment by injection thrice daily of Bovinine and alcohol, deep into the growth on the ear. Following each injection, the wound was dressed with pure Bovinine three times a day. February 21st, the growth had disappeared, and the case discharged; the general condition was strikingly improved. I had never known so rapid and a complete a result in the treatment of epithelioma

EPITHELIOMA EXTIRPATED BY BOVININE INJECTIONS.

By Dr. T. J Biggs, Sound View Hospital.

Henry S——, Stamford, Conn.; age 41; February 4th, 1898; epitholioma of right ear, involving the lobe, of three months' standing. Had been treated unsuccessfully with the new specific called erysipeline, under which it had steadily grown worse. Alcohol with pure Bovinine was now injected into the growth and into the line of demarcation all around, and it was dressed with iodoform-Bovinine

three times a day. March 8th, the epithelioma had separated itself from the healthy tissue almost entirely, and on the 9th I removed it with forceps, leaving a healthy granulating surface in its seat; about two-thirds of the lobe coming away.

CARBUNCLE.

By Dr. T. J. Biggs.

John S——; at Demilt; August 3rd, 1895; carbuncle on the back of his neck; suffering fearful and incessant pain, utterly prohibiting sleep, and mitigated to bare endurance by one-eighth of a grain of morphine every three hours. The sore was exuding dead cellular membrane, like the former. Its edges were very ragged, and raised with inflammatory œdema, showing high inflammation, which accounted for the extreme pain. After constitutional medical and Bovinine treatment, the ulcer was first dressed with wet bi-chloride of mercury, one in five hundred, and the next day, with a charcoal poultice substituted for two days, and (seventh day) the sore was curetted and put under a wet Thiersch dressing for the next two days; after which it was dressed with Bovinine alone, until September 7th, when it was completely and smoothly healed, with no depression of the surface, and a hardly noticeable soft, pink cicatrix, the only trace remaining to mark its site.

It is hardly necessary to add that, from the moment of applying the Bovinine dressing, the agonizing pain at once subsided, as usual, the three-hourly morphine was summarily superseded.

CARBUNCLE.

By Dr. T. J. Biggs, Sound View Hospital.

R—— C——, Portchester, N. Y.; age 22; first seen May ——, 1898, with a well-defined carbuncle on the back of the neck, of the size of a twenty-five cent piece, with four perforations. Patient said he had suffered for three months so severely that he could not sleep, and, unless some relief could be afforded, he must resort to morphine, which he had resolutely abstained from, having a dread of the drug. He was requested to be patient for twenty-four hours, and see if he did not get relief. After thoroughly depurating the lesion with the Bovinine-peroxide and Thiersch, I injected Bovinine and salt solu-

tion hypodermically around it and dressed it with Bovinine pure. In two hours, the pain had ceased for the first time in the three months, and did not recur. Dressed with Bovinine daily until June 3d, and case discharged cured.

CASE OF PERFORATING ULCER.

By Dr. T. J. Biggs, Sound View Hospital.

Mr. E——; nativity, Swiss; age 40; August 1st, 1897; small perforating ulcer, probably specific, which had resisted all customary treatments for six months; about an inch in diameter, just above the nipple on the right side; emitted a very foul odor, but very little excretion. Now, thoroughly cleaned up with pyrozone, and first dressed with wet Thiersch, then with iodoform-Bovinine. After second twenty-four-hours, the change in the ulcer was astonishing; its surface being covered with new and healthy granulations. It was now dressed twice a day with pure Bovinine, under which it filled up rapidly, and by August 14th was completely healed, leaving a soft, pink, non-sensative scar.

TUBERCULAR DISEASES.

LUPUS CASE.

Inveterate Tubercular Infection Finally Eradicated by the Virtue of Bovinine Nutrition.

By Dr. T. J. Biggs.

The lupus case of Miss Mary Noble (age 28), first mentioned in "Modern Medical Science" for February, 1896, and only brought to an end March 10th, 1897, deserves to be considered, in a connected view of its desperate character, long conflict, and successful issue without surgical interference, the most memorable case of the kind on record up to that time. It is unnecessary to remark that lupus is a form of tuberculosis that is the terror and opprobrium of surgery, as pulmonary consumption is of medicine. New cases can scarcely add new horrors to the record of its ravage of the facial organs in particular. In cases of the profound infection now to be reported, nose, lips and eyes are destroyed without remedy, by the uncontrollable proliferation and burrowing of the bacilli; sometimes assisted, but never arrested, by surgical extirpation. It was no thanks to forbearance or insufficiency of invaders that any human feature was saved to the face of this young lady, or any limit set in this life to the loathsome ulceration that was overspreading it, under any treatment known to the official teachers of the medical profession. Not only has this been done, but the features have been saved entire, the eyes unhurt, and the countenance undisfigured, save by an inconspicuous scar. The sole positive factor in this result was Bovinine applied and injected.

The case had originated in a contused lacerated wound over the left supraorbital arch, with questionably aseptic dressing at one of the hospitals. A small abscess developed, which her physician, Dr. Blanchard, incised and cleaned out antiseptically, and healed to a point of the size of a pin head, where it remained at a stand for about a week, and then developed rapidly into an ulcer. Then diagnosing lupus, Dr. Blanchard changed the treatment to conteract it, but without success. The sore would partly heal, and then break down again, with aggravation, working onward gradually toward its present site. In this way it had seesawed back and forth with steady advances for two years.

Meanwhile, the case had been submitted to Dr. C——, at the Demilt Clinic, who exhausted the resources of recognized practice for a considerable time, with no better success. Finally, the patient returned to Dr. Blanchard. After two years of ineffectual resistance to the progress of the infection, the thoroughly discouraged physician gladly resigned his case to Dr. Biggs. In summary, to this time, it had been treated with blue ointment, pure kreasote, pure carbolic acid, paste of yellow oxide of arsenic, iodide of sulphur, nitrate of silver, mercuric bichloride solutions of different potencies, peroxide of hydrogen, etc.; finally by cleansing and dressing with pure cream, which seemed to do more good than anything else, healing it slightly for the moment; but, in fine, the fruitless exhaustion of all medical resources had confirmed the case as hopeless.

At this time the ulcer was about two inches in length and one inch wide, with rough corrugated and indurated surfaces, and here and there well-defined tubercles. It lay midway between the supraorbital arches, beginning just above the root of the nose, and extending downward on the nose, and latterly over the left upper eyelid.

The left eye being highly congested with purulent conjunctivitis, from the entrance of discharges from the sore, the first thing was to wash out the eye with a saturated solution of boric acid every two hours, for four days, when the inflammation had subsided, and the eye seemed in a healthy condition. Carefully cleansed eyelids and lashes, washed out the eye again, and sealed it to keep out discharges for the future. The next day the ulcer was thoroughly curretted and cleansed with peroxide of hydrogen, and two drops of pure kreasote were injected, at intervals of a quarter of an inch all around the border, at the line of healthy tissues, to destroy the bacilli tuberculosis. It was then dressed with wet Thiersch, covering the whole face except mouth, nostrils and right eye. Two days later (7th day) the dressing was removed, and the ulcer presented a healthy appearance. It was again thoroughly cleansed with peroxide of hydrogen, the edges were touched with 25 per cent. pyrozone, and the wet Thiersch dressing again applied. On the eigth day the ulcer appeared in the condition desired for receiving the vital nutrition so much needed, and it was therefore commenced at this point, by injecting Bovinine and salt water, half and half, all around

the line of healthy tissue, six or seven drops at every quarter-inch. Then, over the denuded surface was spread the usual dressing of sterilized gauze saturated with Bovinine, covered with oiled silk, cotton and bandage. The Bovinine dressing was changed every day for the next ten days. Steadily improving under the topical nourishment, the ulcer by this time had entirely healed, except a minute point halfway down the nose, and one the size of a pea on the eyelid, where it would seem that some bacilli had escaped the treatment. These points were treated again with the same process as before—curretting, cleansing and dressing with Bovinine. This was January 27th, 1896; the scar was pink, soft and healthy; the constitutional condition all that could be desired; eating and sleeping well; and everything indicated a complete cure.

The notable peculiarity always attendant on the appropriate application of Bovinine, and of no other known agent —the absolute annihilation of the most distressing and constant previous pain—had been, of course, marked in this case. The first application substantially relieved, and the third abolished the pain entirely from that day to this.

But, virulent as the infection had shown itself under the old treatment, which had proved impotent to arrest its progress at all, it was reserved for the beginning of success under the new treatment fully to reveal that profound intrenchment of the disease which in such cases makes the occasionally hopeful appearances a mockery to the end.

The writer watched for eighteen months the wrestle with the hideous distemper fastened on that young woman's face. A more stubbornly contested field was never seen. As fast as the ulcer was healed at one position, the deep-seated infection would generate new tubercles and new centres of ulceration elsewhere. Supposing them extirpated one after another by surgery, how much would have been left of the face after all their forces had been exhausted—if they ever were?

Instead of such undefinable devastation, it was to be seen what Bovinine, in full perpetual supply, internal as well as external, could do to overpower and eradicate physiologically the underworking virus. This has been done. By constant attendance on the patient for a year and a-half, combatting the obstinacy of the distemper with a perpetual supply of Bovinine alone (antisepsis clearing the way), the

end of the struggle was reached; and on the 10th of March, 1897, it had become evident that the peaceful physiological victory was complete: the maligin process that had persisted for so many years had now finally ceased, and the long-afflicted sufferer was discharged, free of all damage or danger, save a soft, healthy cicatrization on the upper part of the nose, and this gradually resuming natural color, with sensitiveness scarcely less than that of normal skin.

The Case of JOHN F. BALDWIN

Is placed after that of Mary Noble, although so much more conspicuous, in order that a close comparison of the two, with the simplified treatment and speedy result in the later case, may reveal to the reader the measureless therapeutic progress effected by the discovery of the depurating and sterilizing power of the Bovinine-peroxide reaction. This was unknown at the time when Mary Noble's case was treated; and the difference it makes in tubercular and all other ulcerative and septic processes is accurately measured by the difference between the eighteen months of her conflict and the short decisive issue of the following case in four months, after thirty-six years of incurable and agonizing tubercular ulceration.

LUPUS CASE OF JOHN F. BALDWIN, OF NEW YORK.

Thirty-six years of Disease and Excruciating Pain, Despite the Best Efforts of Leading Surgeons, Entirely Ended in Four Months by Bovinine Treatment.

By Dr. T. J. BIGGS, Sonnd View Hospital.

Mr. John F. Baldwin, age 79 years, was entered as patient in Sound View Hospital on the 8th of June, 1898, exhibiting a deep lupus vulgaris which involved almost the entire nose, extending down under the left eye and cheek; and also involved the nasal tissues, internal and external, as far back as to the middle anterior nares. His sufferings had been so constant and severe that opium, morphia, or any other of the anodynes in use had little or no effect, and the only relief he could obtaiu, partially or temporarily, was by taking a large drink of whisky or brandy, which, being a temperate man, he was unwilling to do.

The present condition began thirty-six years ago, with a little pimple, which would not yield to the usual treatments, and at length broke down into an ulcer. Employ-

ing the best-known physicians in that line, he resorted to one eminent authority after another, spending money and time freely, but without benefit, only getting worse at every effort. The celebrated surgeon, Dr. Valentine Mott, went at it vigorously, and compassed literally sea and land for some untried remedy, old or new. But all remedies failed to counteract the irresistible progress of the infection, and Dr. Mott himself finally gave it up, having accomplished nothing. Mr. Baldwin next resorted to an institution where a specialty was made of such diseases. Here a plaster was applied, causing excruciating torture, which was endured for a week, when the bulk of the pathological mass came away. The wound then began to heal partly, and he began to hope that an end was approaching. But the condition soon retrogressed, broke down rapidly, and extended farther than ever before. Again he started out in pursuit of various treatments, trying all that held out any hope, in a long struggle without result. One of the numerous treatments in a struggle of thirty-six years, consisted in caustics of some kind, applied on toothpicks, burning out little pieces of the diseased tissue at a time. This the unhappy patient suffered for five years, with no result but increase in the extent and depth of the ulceration. In all this time no one had thought, or perhaps heard, of the powers of Bovinine to satisfy tortured nerves and to nourish famishing and moribund tissues from which the native blood stream is barred by disease. This, at last, through the suggestion of a friend, Mr. Baldwin was led to experience in Sound View Hospital; admitted June 8th, 1898, in a condition completely worn out, so feeble that he could hardly walk upstairs without help, unable to sleep from incessant pain, without appetite, and ready rather to die than endure further.

The patient's vitality, though it had been amazing to his friends these many years, was now so much lowered, together with his great age, that I saw it necessary to build him up for a while before operating. He was given a tablespoonful of Bovinine in milk every three hours, and a quarter grain protiodide of mercury also at every three hours. This treatment was continued for ten days, when the protiodide was discontinued, and Barclay's preparation of gold, mercury and arsenic bromide was substituted, ten

drops three times a day—this to combat a hereditary syphilitic taint. After thus building up the patient as far as possible, on the 20th of June, assisted by Drs. Hoyt and Miller, using chloroform anæsthesia, with a sharp dermal curette I removed the entire mass of diseased tissue as thoroughly as I could. Following this, I touched up the entire surface and edges of the wound with the Paquelin cautery; depurated the parts with the Bovinine-peroxide reaction washed out with Thiersch; dried and dusted over the entire surface with lactate of silver, over this placed iodoformized gauze and a bandage. Changed the dressing after twenty-four hours, and for two weeks further redressed as before three times a day. At the end of this time a large crust, covering the entire sore, came away, leaving a healthy granulating surface. After that, the wound was cleansed daily with Bovinine-peroxide reaction, washed out with Thiersch, followed by spraying with pure Bovinine; strips of oiled gauze being laid over to prevent evaporation of the Bovinine.

The wound now began to heal rapidly, and by August 22d was healed, except a minute point on the left side of the nose, which I continued to watch and dress daily, as before. September 1st, I noted a little development which had escaped the curette and cautery on the upper part of the nose; also one on left cheek at the lower margin of the cicatrix, and one on the right ala of nose. This necessitated some more thorough scraping under chloroform; the suspicious points were removed, the wound depurated, as usual, with Bovinine-peroxide washed out with Thiersch, and a dry dressing of boric acid and acetanilide applied. This dressing was not touched for a week; then, having loosened up, it was removed easily, leaving the points that had been curetted in a healthy granulating condition. Depuration and Bovinine dressing were resumed twice daily, as before, and continued to October 23d, and on the 24th patient was discharged cured; having passed two weeks of probation since the last point of ulceration had healed without developing any sign of renewed outbreak or of such flesh as would indicate its possibility.

Remarks.—(1) Immediately after the first dressing with Bovinine following the first and extreme operation, the ony and unintermitted agony of so many years ended, and in forty-eight hours all pain had ceased, and ceased

permanently; the removal of the septic secretion having served to let in the supplied vital element to do its healing work on the tortured nerves; (2) the unheard-of rapidity of healing; (3) the smoothness of the cicatrix, soft, pink and healthy, its outline, or demarcation from its normal skin, being almost undiscernible.

INTERESTING FINALE OF JOHN F. BALDWIN'S CASE.

After the discharge of the case as above recorded, Mr. Baldwin was visited and watched in New York, with a view to the detection of any traces of tubercle that might remain lurking in his system. He was feeling perfectly well—the first enjoyment of health in thirty-six years, or even of relief from perpetual suffering—but merely noticed a little itching about the site of the ulcers, such as often attends such places. This, however, awakened some suspicion in the mind of Dr. Biggs, and he had his patient out to the hospital again, and made a new examination. Under a powerful lens, a persevering search revealed, on the line of apparently healthy tissue around the outside of the scar, a number of white specks of about the area of a pin point. These were closely watched for a number of days, until they were found increasing, gradually, to the size of a pinhead, and finally began to be elevated a little above the cuticle and to assume a slightly bluish tinge. There was no sensation associated with them, except that when touched with a blunt probe they were found a little more sensitive than the adjoining flesh. Convinced that this was some pathological process, and fearing a possible tubercular character, Dr. Biggs excised one of them, mounted a section, and under the microscope discovered once more the tubercular bacillus. He then removed them all by lifting out with a small dermal curette; applied the electrical cautery and Bovinine twice; healing them thus, gradually, two or three at a time, and still watching closely for further developements, until there were no more signs for alarm, when the patient finally returned home.

These minute points of infection might, not improbably, have remained latent four or five years longer before breaking out, or, again, they might become encysted and spontaneously healed No doubt, however, Mr. Baldwin

is well rid of them, thanks to a thorough watchfulness of the sequelæ of cases, which is, unfortunately, so rare that the real results and merits of the various treatments of disease remain very uncertain in spite of all the reports of cases.

From the MASONIC STANDARD, November 5th, 1898.

September 27th, 1898.

M.I. FREDERICK KANTER, Grand Master of the Grand Council of Royal and Select Masters of the State of New York.

Dear Sir and Brother.

I have the honor to report that, in compliance with your request, I visited on Saturday, September 24th, M.I. John F. Baldwin, Past Grand Master of the Grand Council of Royal and Select Masters of the State of New York, at Sound View Hospital, Stamford, Conn.

Brother Baldwin, as you are aware, has for the past thirty-six years been afflicted with a destructive growth on the face and nose known as lupus vulgaris. Some time in May of this year I brought to his attention the report of several cures of lupus performed by Dr. T. J. Biggs, of New York City and Stamford, Conn. Brother Baldwin investigated the reports, and, after careful consideration of the facts, determined to go with his wife to Sound View Hospital, and place himself under the care and treatment of Dr. Biggs. At the time of his entrance into Sound View Hospital he was unable to go up or down stairs, or even from one room to another, without assistance. The treatment at first was of a preparatory and tonic character, in order to build up the patient's strength for the operations to follow. It consisted of the internal administration of Bovinine. Under this treatment, associated with good food, fresh air, and cheerful surroundings, Brother Baldwin's improvement in general health was very rapid. Two weeks after his entrance he was able to go off fishing by himself, and at the expiration of six weeks was considered in a physical condition for the operation.

The operation (which, as an operation, was no different from those that had been performed before, always resulting in failure) consisted of curetting and cutting away the diseased growth with the application of the thermo-

cautery. Subsequent treatment was the preparation for, and the final application of, Bovinine dressings to the wound. Dr. Biggs claims that his success in the treatment of all these pathological conditions is due to the proper preparation of the diseased surface for, and the application and absorption of Bovinine.

Under this treatment the wound rapidly healed, the condition of the patient improved, with entire freedom from pain, and his final discharge from the hospital was to have taken place on the 26th of September. A careful examination of the locality of the lesion revealed the fact that there still remained three minute points of deposit of tubercular bacilli, although there was no abrasion of the skin, and, in order that there should be no possible danger of the renewal of the process, Dr. Biggs persuaded Brother Baldwin to submit to a second operation, which was successfully performed the 22nd of September.

Sincerely and fraternally yours,

JOHN ALSDORF, M. D.

M.I. Comp. Baldwin returned to the city about two weeks ago, greatly improved in appearance and spirits and in good health. He is attending to business as usual, and will fill his old position as prelate in Palestine Commandery next Monday night.

LUPUS OF FIVE YEARS' STANDING.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. J——, Port Chester, N. Y.; age 40; January 20th, 1899; lupus of right leg; had been under various physicians, and at two different hospitals, during five years, and had been operated on three times; sore now four by two and a-half inches; a well-defined case of lupus vulgaris. January 24th, under anæsthesia I excised the entire sore, going half-an-inch beyond the edges; depurated the wound with Bovinine and hydrozone, washed with Thiersch's solution, and dressed with iodoform-Bovinine. This treatment was repeated three times in twenty-four hours up to March 2nd, at which time the ulcer was found to be in a healthy granulating condition, and I determined on skin-grafting. Six minute grafts, about the size of a small split pea, were removed from the thigh and arm, and arranged on the surface of the

sore. Over the grafts a single layer of bi-sterilized gauze was laid, and stitched on the opposite side. To this, Bovinine pure was applied constantly. March 7th, the grafts had become firmly adherent, the strip of gauze was removed, the wound was again depurated and dressed with Bovinine pure. This was repeated every three hours up to March 18th, when the ulcer was entirely healed, and the patient was discharged cured. Coincident with the external treatment, the patient had been given internally a tablespoonful of Bovinine every three hours.

CHRONIC TUBERCULAR ULCER.

By Dr. T. J. Biggs.

Louise Gobeley; age 24; 27 Broome Street, Newark, N. J. Tubercular ulcer three by two and one-half inches in diameter on right leg over tibia, of six years' standing, had never healed in spite of various treatments. March 15th, 1894, the ulcer was curetted, and then injected subcutaneously with iodoform-Bovinine at the line of demarcation, in six places. The wound was then cleansed and dressed with Bovinine, renewed daily, and the patient was discharged entirely well, April 10th, 1894.

CHRONIC LUPUS.

By Dr. T. J. Biggs.

Henry Metz; age 36; January 2nd, 1896; lupus vulgaris, size of quarter dollar, over mastoid process under left ear; result of a contused wound running into an abscess, and now of one year's standing. It had been opened and cleansed, and had healed kindly down to the size of a pin-head; but began again to grow; and microscopic examination of a section proved it a typical case of lupus. From that time an exhaustive series of treatments for that disease have been applied, with nothing more than palliative results. Three times it had been almost healed, only to break down again and grow faster than ever.

January 3rd, by Dr. B—— the ulcer was thoroughly curetted and sterilized for twenty-four hours, after which Bovinine was applied in gauze. This treatment was repeated until February 13th, when the cure appeared to be substantially perfected.

LUPUS CASE.

By Dr. T. J. Biggs.

John Fox; age 40; lupus ulcer over the right malar bone. March 16th, curetted and dressed with Bovinine. Treatment continued to April 9th, and entirely healed.

LUPUS, CHRONIC ULCERATION.

By Dr. T. J. Biggs, Sound View Hospital.

E. H——, New York; age 43; April 1st, 1898; lupus on the back of left hand of the size of a silver dollar; had been treated four years, employing, it is said, twenty-five physicians, but had never healed; treatment consisting of about everything known in practice, except Bovinine, even to the actual cautery and curettement. After thorough curettement and sterilization, Bovinine was injected all around the circumference of the ulcer, and it was then dressed with a wet Thiersch pack. At the end of twenty-four hours, the Bovinine-peroxide depuration, with Thiersch's irrigation, was performed. Iodoform-Bovinine dressing was applied, and renewed daily until April 15th, when another thorough depuration with peroxide on Bovinine was given, with Thiersch's irrigation, and dressing now with Bovinine pure. Thenceforward, the progress was satisfactory, and on May 20th, the patient was discharged, the wound having entirely and absolutely healed.

LUPUS CASE.

By Dr. T. J. Biggs, Sound View Hospital.

George P——, Stamford, Conn.; age 36; March 11th, 1899; lupus vulgaris of nose. This condition had been of seven years' standing, and during that time the patient had been operated on at five different times, the operations consisting of curetting and cauterizing with the Paquelin cautery and various strong acids; but, in spite of this, the condition, after a brief improvement, would renew itself in a more aggravated form. When the patient came under my care at Sound View Hospital, the lupus involved the entire left side of the nose, extending down on the cheek. Examination by the probe revealed it to be very deep. The patient was put to bed, and preparatory treatment instituted. March 13th, under anæsthesia, the lupus was

entirely removed by the curette; following this, the surface and edges were touched with an electric cautery, the wound was cleansed with Bovinine and hydrozone, and dressed with Thiersch-Bovinine. This dressing was repeated every three hours until March 16th. The idea of using the Thiersch was to render the Bovinine more thoroughly antiseptic for a few days, so as to destroy any remaining bacilli. From this time on it was dressed with Bovinine only three times in twenty-four hours. The process of healing was rapid and uninterrupted, and on April 10th, the patient was discharged. Coincident with this local treatment, a tablespoonful of Bovinine in milk was given every three hours. The remarkable points of interest in this case are its complete, rapid and uninterrupted healing, showing conclusively that for a perfect result the Bovinine dressings are absolutely necessary. Five thorough operations performed before I got the case (although at that time the condition had been less extensive) were absolute failures Bovinine seems to act as a specific in these morbid conditions.

NECROSIS OF BONE (TRAUMATIC) AND TUBERCULAR OSTEOMYELITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Mr. Ora Rogers, Corona, N. Y.; age 29; September 6th, 1897; three years' bullet wound, with necrosis of head of tibia, from the ball striking the head of the patella, breaking off a spicula of bone from the condyle and driving it into the head of tibia.

From the intense pain which the patient had for a long time been suffering, the stiffness of the limb, the general physical appearance, and family history, I suspected a tubercular osteomyelitis; and advised immediate operation. Two weeks were given to corrective and supporting regimen, with Bovinine in milk or diluted whisky, as the condition required.

September 21st, an incision and a careful dissection were made, exposing finally the tibia head. A button of bone was taken out of the head of the tibia, which was found to be diseased throughout. The entire head of the tibia was then curetted out, leaving it a mere shell. The cavity of the bone was at once cleansed out with the Bovinine-peroxide reaction, and the product washed out with

Thiersch's solution, and then packed with iodoform-Bovinine in sterilized gauze. This packing was changed every twenty-four hours for one week, with daily cleansing and sterilization as before, when the bone cavity was found beginning to fill up with healthy material. But so much necrosed bone had been removed tha I deemed it necessary, for a complete and rapid cure, to employ sponge grafts. From the finest quality of sponge, after being specially prepared, a small layer, about the thickness of a finger nail, was shaved off with a sharp scalpel, gently laid in the bone cavity, and fed with Bovinine by a dropper, the wound being kept open. In five days of this continued treatment, the first sponge graft had become vitalized; healthy granulations having sprouted like little vines ramifying through the pores of the sponge. On the seventh day after the first, another sponge graft was applied, and treated in the same way. This also became vitalized, and had pretty nearly filled up the bone cavity with new bone, within seven days, or on the 3d of October. Ten days later, a third sponge graft was applied; keeping up the Bovinine-peroxide and Thiersch's sterilization and Bovinine dropping, from day to day. Ten days more sufficed for this last graft to become not only vitalized, but converted to solid bone, like its predecessors, to fill the cavity entirely. Periosteum was new dissected up and brought in apposition over the site of the late cavity by means of continuous horse-hair sutures. This united completely and firmly, fed with Bovinine, in five days. The edges of the external wound were then freshened and brought in apposition by strapping and two heavy catgut sutures, dressing with pure Bovinine. The wound was entirely healed November 2d, but the patient was kept two weeks longer to watch for sequelæ.

SECOND CASE IN SAME PATIENT.

Re-entered November 16th, and operated on for removal of a secondary tubercular osteomyelitis, in the shaft of the tibia, about two inches long, and extending down nearly to the medullary canal. It was thoroughly curetted out, depurated with the Bovinine-peroxide reaction and Thiersch's irrigation, and packed with gauze saturated with Bovi-

nine. This packing was changed once a day until December 7th, when the cavity was entirely filled, and the external wound was healed.

A third tubercular deposit had now developed in the right axillary cavity, involving two of the axillary glands, requiring a third operation.

SAME PATIENT.

Re-entered January 6th, 1898, with a third development of tubercular infection in the tibia, below the others, extending from above the ankle joint, a length of four inches. The necrosed cells were thoroughly removed, going nearly through the diameter of the shaft. The cavity was scoured by the Bovinine-peroxide reaction and Thiersch's solution, and packed with gauze soaked in iodoform-Bovinine. This treatment was repeated until February 2d, at which time the cavity was found entirely filled up with new bone, and covered with new, healthy periosteum.

TUBERCULAR OSTEOMALACIA, VERTEBRAL.

By Dr. T. J. Biggs, Sound View Hospital.

Mrs. T——, Port Chester, N. Y.; age 39; May 27th, 1898; fourth, fifth and sixth dorsal vertebræ badly diseased. The spinous process of the fifth was almost destroyed, and a sinus leading down to it exuded a large quantity of foul sanguineous pus. This was syringed out with peroxide-Bovinine, then filled with Bovinine and dressed. On June 6th, I removed the spinous process of the fifth and sixth vertebræ and the pathological tissues of the cavity and surrounding parts, and, to destroy any remaining bacilli, depurated it with peroxide-on-Bovinine; then packed with Bovinine in gauze, repeating daily until June 29th, when the cavity was filled with new bone, and the wound healed.

GANGRENOUS TUBERCULAR NECROSIS OF BONE.

By Dr. T. J. Biggs, Sound View Hospital.

Carl O——, Stamford; age 28; February 26th, 1899; tubercular necrosis of finger; five weeks previous, the end of finger was pinched off between first and second joint, in a steam cutter. A physician stitched it on, put the finger in splints, and dressed it daily with wet bi-chloride dressings for ten days. The pain was excruciating, the hand and arm so swelled, the severed end of the finger so

black, and the smell so foul, that an immediate operation was necessary to save his arm. Following this operation, the patient experienced much relief from pain; but his hand and arm grew steadily worse. When he came to me, the remaining bones of the little finger, and the metacarpal bones, were badly diseased; those of the little finger being utterly devoid of life. The whole hand and forearm was badly swelled; the axillary glands much enlarged and painful.

He was put to bed, and his secretions regulated, and on the next day (27th), under anæsthesia, I removed the little finger, excising the head of the first metacarpal bone. I then carried my incision down the palmer surface to the wrist joint, and found the bones so badly diseased that I had but little hope of saving the hand; but I determined to make a stubborn fight for it. Two large glands in the axilla were removed, and the forearm incised over the tendon of the pronator radii longus; the pus having extravasated to that point. The wounds were now all depurated with Bovinine and hydrozone, followed by Thiersch's irrigation. Iodoform-Bovinine was then injected into each wound, and they were packed with iodoform-Bovinine gauze, and dressed according to the ulcer technique. This procedure was repeated every three hours, up to March 7th, at which time the formation of pus had entirely ceased. The wounds in the axilla and forearm had healed, and the bones in the hand had taken on a healthy appearance. The hand was now dressed with Bovinine pure, three times in twenty-four hours, to March 16th, when the bone had been restored to health and covered with periosteum. March 22nd, the wounds were entirely healed, and through free use of Bovinine internally he had gained over 12 pounds in weight.

TUBERCULAR APPENDICITIS—A NOVEL OPERATION.

By Dr. T. J. Biggs, Sound View Hospital.

P——G——, Glenville, Conn.: Russian; age 36; sent by a brother physician, under whose care he had been for more than a year, but with no benefit. Received April 16th, 1898. Diagnosis: anæmia, complicated with tubercular phthisis and appendicitis. (Treatment of the phthisis under head of Consumption.) A large quantity of tubercle bacilli were found in the fauces of throat, as well as in the expectoration

Examination over the cæcum revealed much tenderness and considerable enlargement. Pain was very severe in the cæcum three hours after eating. This condition had been slowly progressing, and from its general history I diagnosed tubercular appendicitis, and advised operation, to which patient consented. His condition, however, was not such as I cared to operate on immediately, and I therefore put him on a course of preparatory treatment. May 2nd, patient was properly prepared, and laparotomy performed. The cæcum was found distended, but in a healthy condition. The appendix, however, was completely diseased, and bound down by adhesions to the cæcum. It was now carefully dissected off, and the surfaces to which it had been adherent were first touched up with the Paquelin cautery, and then cleansed with peroxide-on-Bovirine and Thiersch's irrigation. The appendix was so firmly adherent to the cæcum that on ligature could be employed to close the appendix opening. For this reason, as well as that the surface to which the appendix had been attached was so extensively involved, I deemed it unwise to close the opening immediately, so therefore stitched it to the abdominal wound, with the intention to treat it exactly as I had treated the ovary in the case of Miss R——. A gauze packing of iodoform-Bovinine was laid over the wound, and a dressing such as used on ulcers was applied. The patient reacted nicely from the anæsthetic, and suffered absolutely no pain. The dressings were renewed twice a day, until the 8th, when I found the wound of cæcum in a healthy condition, and therefor stitched it up with continuous catgut sutures. By the 18th, the cæcum wound was entirely healed. The sutures holding it to the abdominal wound were now removed, and the cæcum was dropped back into the cavity. A drainage tube was inserted, and a wet Thiersch gauze dressing applied. In twenty-four hours, there having been no rise of temperature or indication of any disturbance whatsoever, the edges of the abdominal wound were brought in apposition with three silver-wire and five silk sutures, and a pure Bovinine dressing was applied. This was changed daily until the 29th, when the wound had entirely healed. A proper support was now applied, and on the 30th of May, 1898, the patient was discharged cured.

Points of great interest in this case are: the rapid healing of the cæcum wound and the absence of any signs of shock.

TUBERCULAR ENTERITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Frank F——, Glenbrook, Conn.; Slav; age 26; December 19th, 1898; had been suffering with this condition about four years, and had subjected himself to many different treatments without avail. He presented the following symptoms: Severe colicky pain occurring in paroxysms, situated above the umbilicus, much localized tenderness; loose evacuations; occasional attacks of nausea and vomiting; the stools contained but little fæcal matter, were greenish yellow in color, blood streaked and mixed with undigested food; appetite greatly impaired; digestion and assimilation poor; extreme weakness and emaciation. Microscopic examination of the stools revealed a trace of tubercular bacilli. Patient was kept in bed, given internally a teaspoonful of Bovinine in milk and lime water every hour; together with medical treatment and rectal injections of iodoform-Bovinine three times a day. January 1st, the Bovinine was increased to a tablespoonful every two hours. rectal injections as before. January 16th, symptoms had entirely disappeared, with the exception of some rectal soreness. The treatment was continued to January 29th, at which time it was found that the condition was completely relieved.

BOVININE IN THE TREATMENT OF TYPHOID FEVER.

By Prof. Wm. F. Waugh, M.D., Chicago.

The condition of the digestive system during an attack of typhoid fever, as shown in this brief sketch, warrants our first proposition: That during the course of this fever the power of digesting food is impaired, always seriously, and sometimes almost entirely lost, from the suspension of secretion.

My second proposition is, that food that will not be digested in the stomach or bowels of a typhoid fever patient is not only useless, but harmful; as in the absence of digestion, decomposition is certain to occur, with the production of substances that are certain to be injurious to the patient. I must refer to this cause the tympanites that occasion so much trouble.

The conclusion is, that in typhoid fever the stomach and bowels should not be looked upon as digestive organs, but simply as receptacles for food that has been previously digested.

That absorption may take place cannot be denied. The whole gastro-intestinal mucous membrane is adapted for absorption. Liebermeister is right in insisting upon the liberal use of water. The digestion is thereby improved, and the emaciation largely prevented. If patients do not ask for it, water should be given systematically in stated quantities.

Milk, according to Dujardin-Beaumetz, can only act as salt and water, as neither the fat nor the casein can be absorbed. [But no authorities are needed to assure us that the casein by curdling becomes liable to decomposition, in the absence of digestion, with the injurious products and effects attributed by Dr. Waugh to undigested food. Milk is really a kind of food that exacts vigorous efforts of digestion, even in health, and is thus another of the elements to be excluded from the dietary of typhoid fever].

The disease affecting the glandular apparatus of the intestines, absorption through this channel is impossible, and the patient can only be nourished by means of absorption through the veins. In typhoid fever, the glands drained by the thoracic duct are rendered incapable of absorbing

food. The only exceptions to this rule lie in the fact that all of Peyer's glands may not be wholly disabled at the same time, as the glandular affection is somewhat progressive from above downward, and some of the glands may not be affected.

It becomes, then, a question whether we can supply food at all during the typhoid attack; whether any substance can be directly absorbed into the veins without passing through the intestinal glands, and yet be assimilated.

Bovinine answers the need most admirably. It has been my reliance in feeding to typhoid cases for many years, and its success has demonstrated the correctness of the above proposition.

The net results of the application herein recommended are these: 1. Avoidance of the gastro-intestinal irritation due to undigested food. 2. The sustaining of the patient's strength by really feeding him (as distinguished from the mere placing food in his stomach), and the consequent avoidance of collapse, and all the long train of ills that come from malnutrition. 3. The avoidance of the excessive emaciation so often seen after protracted attacks of typhoid fever. 4. Shortening of the convalescent period. 5. I put forward, tentatively, my impression that the secondary degenerative lesions of muscles, nerves, and other tissues, are not wholly due to continued high temperature, but, in part at least, to innutrition; and that these lesions are not nearly so marked when the patient has been fed upon the system herein advocated.

Quite recently a very remarkable series of cases have been reported, in which chronic ulcers, even of many years' duration, have been healed by the local application of Bovinine. Several hundreds of such cases have been so treated with great success. These go so far to confirm my views; for if Bovinine can be absorbed from the surface of an ulcer, or from the subcutaneous tissue about it, and so improve the local nutrition as to bring about healing, how much more likely that such a substance can be absorbed from the stomach, and keep up the general nutrition.

BOVININE AS SUSTENANCE IN TYPHOID FEVER AND GASTRO-INTESTINAL DISEASES.

Remarks by Dr. M——.

In typhoid fever, a disease in which the waste of the nitrogenous elements of the body is excessive, and where the function of assimilation is markedly impaired, Bovinine is of especial value, being very readily absorbed for the most part from the intestinal mucous membrane. Not only is the excessive emaciation prevented, but during the whole course of the disease, the heart action remains much stronger, and owing to the prevention of the excessive waste and degeneration of the tissues, there is not the usual need for cardiac stimulants.

In acute gastritis, where all food is rejected, Bovinine in small quantities will be retained, and being easily absorbed, allows the inflamed mucous membrane to regain its normal tone. In the treatment of chronic gastro-intestinal diseases, where emaciation and weakness are the most marked symptoms, the administration of Bovinine gives results that are most satisfactory. In these cases, the effect may be noticed from the start, and is continuous and steady.

In carcinoma of the stomach, where all foods are vomited, Bovinine is retained, and actually prolongs life, preventing the rapid emaciation and starvation, and the pain and discomfort caused by indigestion of food.

BOVININE IN TYPHOID FEVER WITH COMPLICATIONS.

By Robert Frame, M.D., Milford, Del.

I have tested this treatment in many cases. In a case occurring in a patient, Mr. W. McColley, living near here—disease, typhoid fever—there was a complication of brain and stomach, low muttering delirium, subsultus tendinum, tympany, soreness in the right hypogastric region, diarrhœa, and great irritability of stomach, insomuch that it would reject everything swallowed. The patient was very anæmic and weak. At this time I commenced using Bovinine. It was not only retained, but was readily absorbed. From this time the patient made a rapid recovery

I have been engaged in the practice of medicine for thirty-four years, having graduated at Jefferson Medical College of Philadelphia, class of 1859; and in all this long experience have never met with anything that will compare with this preparation in all cases of irritable stomach and exhaustion. I hope to see it fully endorsed by the profession.

TREATMENT OF THE EYE.

ULCER OF CORNEA.

By Dr. T. J. Biggs, Sound View Hospital.

Isidor P——; age 36; Spanish; entered hospital May 1st, 1900. Diagnosis: Ulcer of cornea right eye. Examination revealed a large corneal ulcer extending from the outer edge of cornea on left side to almost the centre. The patient suffered great pain, had been under constant treatment for two weeks, but was gradually growing worse.

He was put to bed, bowels regulated. May 2d, the eye was thoroughly flushed out with Thiersch's solution, and Bovinine pure applied by means of a cotton carrier over the entire surface of ulcer. This being rather painful, the nurse was instructed to drop into the eye a solution of one-third Bovinine and two-thirds sterilized water, every hour. The first few applications were very painful, but on the morning of the third, instead of paining, the patient said the applications relieved him. Internally, he was given a wineglassful of Bovinine every three hours.

On May 8th, examination showed the ulcer to be healing from the entire periphery. Treatment continued.

May 15th, the nurse was instructed to employ a solution of one-half Bovinine and one-half sterilized water, to be applied every two hours.

May 19th, ulcer healing rapidly, having diminished fully one-half in size. Treatment continued.

May 25th, ulcer healed, with the exception of a point about the size of a millet seed. Treatment continued.

June 2d, patient discharged.

GRANULATED EYELID OF EIGHTEEN MONTHS' STANDING.

By Dr. R——, New York.

Mattie Jones; age 19; June 2d, 1897. Her case had for eighteen months stubbornly resisted the various treatments known at several of our standard institutions. Such being the case, I readily yielded to the suggestion of a professional colleague to try the Bovinine treatment. After twenty-four hours of antiseptic preparation, Bovinine was applied, and ordered continued by dropping under the lower eyelid every two hours. July 12th, this patient was discharged; her obstinate chronic distemper eradicated by a simple treatment of less than six weeks. The result I consider most remarkable; and I shall give Bovinine a thorough trial in many cases, reports of which may be expected.

ULCERATIVE CONJUNCTIVITIS.

By Dr. T. J. Biggs, New York.

F. S. Ayres, of New York; age 24; November 27th, 1897. Four days preparatory treatment, and on December 2nd this was discontinued, and pure Bovinine was applied to the conjunctiva by a dropper, every two hours, after cleansing the eyes each time with tepid Thiersch solution. December 14th, patient was discharged, cured of a condition from which he had suffered over four years.

ULCERATIVE CONJUNCTIVITIS.

By Dr. T. J. Biggs, Sound View Hospital.

C——W——, South Norwalk, Conn.; American; age 40; first seen July 23rd, 1898. Had suffered with ulcerative conjunctivitis of both eyes for ten years, under many physicians and in five different institutions, growing all the time steadily worse. The ulceration had destroyed all the hair follicles of the lower eyelids. July 24th, after rendering the parts insensible by a 10 per cent. solution of cocaine, the ulcerated surfaces were brushed over with a 25 per cent. solution of pyrozone; the membrane and ulcerative surface were antiseptically cleansed with peroxide-on-Bovinine and washed off with Thiersch, and Bovinine pure was dropped in, every two hours; continuing this, with the

Bovinine-peroxide depuration night and morning, and dropping the Bovinine in every three hours after the 26th, until the patient was entirely cured and discharged on September 1st, 1898.

CORNEAL ULCER.

By Carl G. Winter, M. D., Indianapolis, Ind.

On Thanksgiving Eve, 1895, I was called to see a child, aged fifteen months, with corneal ulcer. I used all of the treatment generally used in those cases, but my result was that I advised enucleation in four days after the beginning of the treatment. This the family would not allow; and so, while considering the case, I thought of the Bovinine treatment; used it locally and internally, and the ulceration was perfectly healed after treatment of twenty-two days.

CHRONIC ULCERATION OF CORNEA.

By J. T. Barnett, M.D., Hardinsburg, Ind.

Lady; aged 61; chronic ulceration of cornea; washed eye twice a day with a 5 per cent. solution of boracic acid; Bovinine, one drop applied to ulcer three times a day; gave quinine and iron; kept bowels open; ulcer healed in ten days.—In Medical World.

CHRONIC ULCERATION OF CORNEA.

By Dr. T. J. Biggs, Sound View Hospital.

Mike K——, Stamford; June 8th, 1898; had been under treatment in a New York hospital, the disease slowly progressing; ulceration extended, on the right side of the left eye, from almost the centre of the cornea to and slightly over the sclerotic. Surrounding tissues were greatly inflamed, and the conjunctiva were ecchymosed. First application, a wet Thiersch pack, changed every two hours. After forty-eight hours, the treatment of the ulcer was begun. Patient was put in a horizontal position, and one part hydrozone in two of sterilized water was applied to the ulcer; after which, Bovinine was dropped on. Nurse was ordered to drop Bovinine in the eye every two hours, and every night and morning cleanse the ulcer with hydrozone and water as before. Patient was soon relieved of all pain, which had been extreme, and the edges of the ulcer were healing, pushing forth healthy points into the centre.

All inflammatory action in the surrounding tissues had subsided. Bovinine was continuously applied as before until July 14th, when the healing process was complete and case discharged.

EYE CASES, ETC.

By Dr. M. H. Wheeler, Butler, Ky.

For about six years I have scarcely passed a day without using the Bovinine treatment. I have tested it in hundreds of cases and in as many different diseases, and my results certainly have been marvellous. Recently, a case of granular lids, burned to a crisp with cupri sulph. and other caustics, came to me. I unhesitatingly gave Bovinine the severe test to which this extreme and unusual condition challenged it; using one-half strength to begin with, and quickly increasing to full strength; after one week the lids had commenced to soften and the granulations to separate, and in twenty days the case was discharged. This case was one of two years' standing, and the subject was a lady 70 years of age. I can safely say, from much experience, that applied Bovinine will set up healthy granulations when nothing else will, and any one doubting my word will please give it a trial to be convinced.

Within the last week, I dissected a fatty tumor from the upper eyelid, about the size of a three-cent piece; cauterized the part; cleansed the eye; and after soaking a small piece of borated cotton in Bovinine, half strength, placed it over the wound. About thirty-two hours after, I redressed the eye and found no roughness, but instead all smooth, clean, and with no inflammation worth noticing.

I could tire you with cases thus treated successfully after trying many other remedies for them. Cholera infantum should not prove fatal unless the Bovinine treatment is neglected.

EYE WOUND.

Dr. T. J. Biggs, Sound View Hospital.

Mrs. F——; age 40; American; admitted March 22nd. 1900. Diagnosis: Incised wound on right eye, extending from edge of cornea deep into the sclerota on the outer side of the eye. The wound was the result of a cut received

from a drunken husband, and was of six days' standing. When seen by me, the globe of the eye was tremendously enlarged, and the wound septic, with every evidence of an abscess forming, which would certainly have resulted in the loss of the eye.

The patient was put under anæsthesia, and the wound, after a tedious procedure, was thoroughly cleaned with Bovinine and hydrozone, followed by Thiersch's irrigation. The head was immobilized in a plaster cast, the good eye sealed, and the nurse instructed to apply Bovinine pure to the wound by means of an eye-dropper, every half-hour. For the first eight hours the suffering was intense, so much so that the patient had to be kept under the influence of morphine. At the end of the ninth hour, the patient sank into a quiet rest of two hours, from which she awoke free from pain. Every two hours the eye was carefully cleansed with Bovinine and hydrozone, followed by Thiersch's solution. Internally, she was given a tablespoonful of Bovinine in peptonized milk, no other food being allowed.

On April 1st, the process of healing having been well established, and there being now little or no danger of a supperative process, the patient was removed from the plaster cast and allowed to rest upon pillows. Bovinine applications to the eye were now employed once an hour, and the cleansings three times in twenty-four hours.

On April 10th, the wound was half healed; the good eye was now unsealed, and a smoked glass adjusted. The Bovinine applications were now employed once in two hours, and the cleansings twice in twenty-four hours.

April 16th, the wound had almost entirely healed. The Bovinine applications were now employed every three hours, and cleansings once in twenty-four hours. At this time, the Bovinine was increased internally to a wine-glassful every three hours.

On April 24th, the wound had entirely healed, leaving hardly a trace of a scar, with the sight, outside of a slight astigmatized condition, absolutely normal.

On the 29th, the patient was discharged.

I am thoroughly convinced, after a very large experience in the treatment of all kinds of wounds, that if anything but Bovinine had been employed in the treatment of this case, the patient would certainly have lost her eye. The

rapid cessation of the inflammatory process and the complete restoration of the destroyed tissue, leaving little or no scar, can be attributed entirely to the effects of the Bovinine.

ULCERATIVE ECZEMA.

EXTREME CASE OF CHRONIC ECZEMA OF SCALP.

By Dr. T. J. Biggs, Sound View Hospital.

James Norris, Stamford; age 40; September 10th, 1898; eczema of scalp; had suffered more than seven years; treated by one of New York's celebrated dermatologists, also at New York Hospitals; all the time getting steadily worse. Examination revealed the eczema extending all through the roots of the hair, which came out in quantities; running also back of the ears, and down on the neck. The serous discharge was very profuse, and the surface of the scalp was covered with incrustation. This was the condition to which the case had proceeded under the best treatment known to the medical science—at large.

The first thing done was to cover the scalp with hot water compresses, to loosen up and remove the incrustation, and, at the same time, lessen the serous discharge. Next followed the depuration by the Bovinine-peroxide reaction, thoroughly dissolving the septic deposit at the roots of the hair, which was then washed out with Thiersch's solution, until the skin was as clean as a baby's. The scalp was then dried, and open-mouthed to absorb the healing and nourishing Bovinine, which (with the prior preparation) constitutes the secret of success in cases of this nature and most others. The double procedure was repeated every three hours, thorough work being essential; but by September 24th, condition was so much ameliorated that repetition twice a day was deemed sufficient. October 1st, the scalp was entirely healed, except a spot of the size of a half dollar over the right mastoid process, and Bovinine was applied to this spot every four hours until October 8th, when the case was discharged, leaving no trace by which any previously diseased spot could be identified, and the hair had ceased falling out and resumed its healthy growth.

CHRONIC ECZEMA ULCER

By PAULINE J. BRAUN (Nurse), Allegheny City, Pa.

One of my patients in this city, Mrs. E—— S——, suffering for over a year from an eczema ulcer on her leg, was told by her physician that unless entire rest was given the legs a cure would be impossible. She said that rest could not be thought of, as her reduced circumstances required of her constant labor. I applied Bovinine, and, after several repetitions, the ulcer showed decided improvement, and in comparatively short time was entirely healed, though all the while Mrs. S—— was engaged in her daily occupation of washing and ironing.

ECZEMA. EXTREME SUPPURATIVE CASE IN OLD AGE.

By Dr. H. L. PLUMMER, East Boston.

I have found Bovinine especially valuable in five cases of eczema, one of which was that of a lady some 76 years old. Both legs were covered with a suppurative eczematous eruption from knees to ankles. There was not a spot as large as a shilling but showed this eruption. There were also patches about the body. I caused the legs to be thoroughly cleansed, then rubbed in Bovinine with the hand, then doing up each leg in four thicknesses of cloth saturated with Bovinine, which I was surprised to find bleached out white in six hours. Carefully renewing this dressing, also treated the patches in a similar manner; in three weeks the legs and the patches about the body were healed up smooth.

PUSTULAR ECZEMA OF SCALP OF FOUR YEARS' STANDING.

By Dr T. J. BIGGS, Sound View Hospital.

H—— Q——, New York; female; age 17; May 11th, 1898; had resisted all treatment for four years. Cut off the hair and opened the pustules; depurated the ulcerous surface with peroxide-on-Bovinine, repeated daily with applications of pure Bovinine, until June 3rd, when case was discharged.

TWO CASES ECZEMA.

By Dr. SIMPSON, Boston, Mass.

Mary K——; first seen October 3rd, 1898; American; age 19; eczema of face and neck; had resisted treatment of all kinds for several years. Treated on the surface twice a

day with gauze saturated with Bovinine three parts and ichthyol one part, the surface being washed with borax and water and dried before each application. When last seen, November 29th, considered herself entirely well, the surfaces being almost perfectly healed.

Edward Casey; American; age 20; eczema of both hands; had received but partial benefit from various treatments. Treatment the same as above, beginning October 8th, and discharged December 1st.

DISEASED PELVIC ORGANS, EXTREME CASES, TREATED, WITHOUT CURETTAGE OR EXCISION.

RECTO-VAGINAI FISTULA AND LACERATED CERVIX.

By Dr. T. J. Biggs, Sound View Hospital.

Miss A——, South Norwalk, Conn.; age 43; June 10th, 1898; previously treated in two institutions, with three operations—two for the recto-vaginal fistula, and one for the lacerated cervix, all failures. The tear of cervix being old and deep, a V-shaped piece was now removed, and the edges of the gap were brought in apposition by three silver-wire sutures. The vagina was then thoroughly depurated by the reaction of hydrogen peroxide-on-Bovinine, washed out with Thiersch (as always), and an iodoform-Bovinine tampon was inserted. This procedure was repeated in full, twice daily; under which the process of healing was rapid and complete. The last suture was removed on the 21st, as the wound had entirely healed, leaving the scar soft, pink, pliable and normally sensitive.

June 24th, after twenty-four hours preparatory treatment, Bovinine diet, washing out bowels, and sterilizing vagina by Bovinine-peroxide depuration and Thiersch's irrigation, the second operation was performed for the recto-vaginal fistula. On the vaginal side, the edges were denuded for a quarter of an inch in breadth around the circumference of the fistula, brought in apposition and retained by six silk sutures, tied upon little india-rubber discs, in order to bring the edges more firmly in apposition, with less danger of stitches cutting through, the knots resting on the rubber discs. Four stitches were taken in

the same manner on the rectal side. The vagina was then packed with gauze, saturated with iodoform-Bovinine; a tampon, similarly saturated, was placed in the rectum; and the patient was put to bed with hips elevated. [Omitting medical treatment.] The vaginal packing and rectal tampon, of iodoform-Bovinine, with the usual Bovinine-peroxide and Thiersch's depuration, were renewed three times a day, until by July, the line of union was found perfect, though as yet frail, and all sutures on the rectal side of the fistula were removed, and two of those on the vaginal side. July 7th, remaining vaginal sutures were removed, the line of union being complete, perfect and strong. Although debilitated and run down by so much surgical work, under Bovinine she gained rapidly, and on August 1st, was discharged in full health.

In this case, an aggravated one, of a class in which fully 75 per cent. of all operations are failures, the rapid and complete recovery, requiring no secondary operation, is a most interesting example of the vital efficacy of Bovinine.

ULCERATIVE PROCTITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Emma N——, New York; age 24; July 14th, 1898; had suffered three years, under various treatments constantly, but grew steadily worse. Her last physician had attempted Bovinine treatment, but claims to have got no result whatever—quite naturally, even necessarily from the fact that he injected Bovinine into the rectum *without having prepared the internal surface for the absorption of it by thorough cleansing.* It is absolutely necessary that any surface to which Bovinine is to be applied should be first made aseptic by the Bovinine-peroxide reaction, or otherwise.

Patient was now put to bed; secretions were regulated; and on the 15th, after thorough depuration of rectum with peroxide-on-Bovinine, followed by Thiersch, an ounce of iodoform-Bovinine was injected, and a Bovinine tampon was inserted. Six hours later, the whole process was repeated. Under the previously unprepared application of Bovinine by another, the patient had suffered a good deal of pain, and in a short time the Bovinine had passed out as a clot, leaving the rectum very sore. But following my

application, under Bovinine-peroxide depuration, the pain, which had been almost constant, ceased entirely and finally in about twenty minutes; and six hours later, when the tampon was changed, the rectum was found sweet and clean, and all the Bovinine had been absorbed, even that in the tampon, leaving it almost white. This was solely due to the fact that the surface had been cleared and prepared to absorb the Bovinine freely, without which no good could be expected.

The above-described process was repeated every six hours until August 7th, 1898, when the ulcerations had entirely healed, and case was discharged.

ULCERATION AND FISTULA IN ANO.

By Dr. T. J. Biggs, Sound View Hospital.

John Hatter, Stamford, Conn.; age 39; September 6th, 1897; a complete fistula in ano, two and a-half inches in length, of large calibre, and of ten years' standing; around the anus, a complete ring of hæmorrhoids; beyond this, two inches up, within the rectum, were four ulcers; there was chronic constipation, with hepatic torpor. After a few days' preparatory treatment, regulating the secretions, and a diet of Bovinine and milk, September 14th, after thoroughly washing out and sterilizing the parts, and anæsthetizing the patient, a double operation was performed, which consisted in a division of the sphincter muscle through the fistula and scraping out the sinus; after which, a modified Whitehead operation, one inch of gut being removed. The wound made by removal of the fistulous sinus was then sterilized by the Bovinine-peroxide reaction, irrigated with hot Thiersch solution, and packed, as well as the rectum, with sterilized gauze saturated with iodoform Bovinine. This was done daily, up to September 20th; after which, pure Bovinine was employed with the same procedure, three times a day. On the 22nd, the stitches were removed, the line of union being perfect around the anus, and the fistulous wound rapidly filling under the topical Bovinine nourishment. On the 28th, the ulcers in the rectum were entirely healed; leaving now only a small surface, over the site of fistula, unhealed. October 3rd, the fistula was also healed; patient having regular daily defecations normal in quantity, and was discharged absolutely well.

This case is unusually interesting from the fact that with all other treatments employed during the long course of the disease, no results whatever could be attained.

FISSURES OF RECTUM.

Dr. T. J. Biggs, Sound View Hospital.

John H——, Stamford, Conn.; age 46; May 18th, 1898. Had suffered everything from this condition, for ten years, under the care of many excellent physicians, who had, besides numerous medications, performed operations such as dilatation of sphincters, curettment of fissures, and applications of Paquelin cautery to them; but all to no avail; the fissures would not heal. The patient was well nigh discouraged, and said he wished he could die. After a thorough application of cocaine, I made an examination, and found six fissures, large and painful; three amounting almost to ulcers. His condition being so much run down, I determined to take a few days to build him up, with Bovinine in milk, a light diet, and suitable medication. On the 29th, under chloroform, the rectum was thoroughly washed out and the sphincters completely dilated; a Bovinine tampon was inserted, and carried up at least three inches. Another one was placed just beyond the internal sphincter, and a Bovinine gauze dressing was applied over the anus and held in place by a T-bandage. On the 31st, the rectum was depurated by the Bovinine-peroxide reaction and Thiersch's irrigation; a Bovinine tampon was introduced just beyond the internal sphincter, and a Bovinine dressing was applied externally. This procedure was repeated daily to June 10th, when examination showed the fissures entirely healed, and patient was discharged.

Points of great interest in this case are (1) annihilation of pain and sensitiveness which had been so extreme, but of which there was none at all after operation and Bovinine dressing; (2) uninterrupted and complete healing in twelve days of all the fissures, which for ten years had refused to heal in spite of all surgical and medical treatment formely known.

CHRONIC RECTAL ULCERATIONS, FISTULAS, ETC.

ULCERATIVE PROCTITIS; CONGENITAL INGUINAL HERNIA.

By Dr. T. J. Biggs, Sound View Hospital.

W—— B —, Rotan Point, Conn.; age 6; March 7th, 1898. A complicated case of ulcerative tubercular proctitis, congenital direct inguinal hernia, and anæmia. A course of preparative and building-up treatment with the usual Bovinine regimen was pursued until the 25th, when the operation was performed on the ulcerative granulations of the rectum. The little patient being put under chloroform, the rectum was thoroughly dilated, the granulations were picked up on a small tenaculum and snipped off, and the sites were touched with 25 per cent. pyrozone. The sites of ulceration were cleaned off by the Bovinine-peroxide reaction and Thiersch's washing; Bovinine tampons were put in; and this procedure was repeated three times a day until the 30th; after which rectal injections of Bovinine twice a day were substituted for the tampons, until April 5th, when the rectal trouble was entirely healed.

SECOND OPERATION—HERNIA.

April 6th, the second operation, for the radical cure of the hernia, was performed. Two eminent surgeons from New York City, Drs. E. L. Keyes and William Hoyt, having been invited to see this interesting case, Dr. Keyes kindly consented to perform the operation with the assistance of Drs. Hoyt and T. J. Biggs. The operating surface having been previously sterilized by the Bovinine-peroxide reaction and Thi rsch's washing, a modified Bassini operation was performed on the following lines: An incision was made from one inch above the internal abdominal ring, in line with Poupart's ligament, down to half-way on the scrotum. All bleeding vessels were secured, the only large one divided being the internal pudential artery. The sac was sought for and found; a ligature was thrown around it, according to Bassini method; and the portion this side the ligature was removed. The edge of the internal oblique muscle was attached by kangaroo sutures to the border of the rectus muscle; the transversalis fascia and the transversalis muscle was stitched to Poupart's ligament; the cord was laid upon this row of sutures and the external oblique muscle was stitched to Poupart's ligament; this

being clearly seen to have at once obliterated both the sac and the inguinal canal, while at the same time forming a new canal for the cord. The wound was now thoroughly cleansed by the Bovinine-peroxide reaction, with Thiersch's washing, and the fascia were brought together with continuous silk sutures. The child reacted admirably from the anæsthetic, and on the fourth day was entirely free from pain, and in the whole period had developed no rise of temperature. The wound was dressed twice a day with iodoform-Bovinine, uniting beautifully, and evidently healing by first intention. It should have been remarked that the sole nourishment allowed throughout the treatment was a teaspoonful of Bovinine in milk every two hours.

BOVININE IN CHRONIC RECTAL ULCERATION.

By Joseph M. Matthews, M.D.

Professor of Surgery, and Diseases of the Rectum, Kentucky School of Medicine.

I cannot understand why any one would advise colotomy in cases of ulceration, *per se*, of the rectum. With strict antiseptic precautions the rectum can be kept perfectly clean, and the bowels can be absolutely rested any length of time by the aid of various fluid foods, or, what is better than all in my experience, the preparation called Bovinine, which contains 20 per cent. of soluble albuminoids, and is the vital principle of beef obtained by a new process. I have kept patients for weeks on this preparation alone, during which time local applications of it were made to the bowels until all ulceration had healed.

RECTAL ULCER OF TEN YEARS' STANDING.

By Dr. T. J. Biggs, New York.

Clarence Archer; age 37; November 14th, 1896; ulcer of rectum, about half an inch inward, result of hæmorrhoids; treated without benefit for ten years. Daily Bovinine treatment now applied; first washing out of the rectum with Thiersch's solution, then injecting Bovinine, retained by a gentle packing of sterilized gauze soaked in the same; this treatment repeated three times a day for one week; thenceforward, the injection of Bovinine once in four hours without the packing. Discharged December 8th, ulcer perfectly healed.

CHRONIC RECTAL ULCERS.

By Dr. T. J. Biggs, New York.

February 22nd, 1896; John Hagerman; age 42; chronic ulcer of the rectum, about one inch inward, and of the size of a nickel piece; had resisted all the usual treatments for a year. The rectum was now thoroughly cleansed with warm castile soap suds, and then washed out with Thiersch. Bovinine was applied on a cotton tampon every three hours (repeating same process of cleansing and disinfection) up to March 6th, when the ulcer was healed to the limits of a pinhead, and on March 10th completely.

FISTULA IN ANO.

By Dr. T. J. Biggs, New York.

Mrs. A——, in one of the principal New York hospitals, with a complete fistula in ano, had refused operative treatment, and was consequently turned over by the hospital staff to me for Bovinine treatment. My first procedure was to remove the walls of the sinus by injecting a 25 per cent. solution of pyrozone with a small specially-made glass syringe having a very small nozzle; and passing through the sinus to the rectum, a piece of carbolized silk worm gut, to keep open and promote destruction of the walls by the irritation of its presence. This procedure was repeated daily for a week. The last three changes of the gut showed hæmorrhage, indicating probable destruction of the walls of the sinus and commencement of healthy granulation, and thorough examination revealed no remaining wall.

Now, after washing out the channel thoroughly each day. Bovinine was injected daily to May 6th, when rectal examination revealed no internal opening, and showed that the sinus had healed from within out to the end; externally appearing merely as a little teat of granulations about the external opening, which was removed with nitrate of silver and dressed with iodoform-Bovinine.

FISTULA.

By Dr. W. C. Coy, Meriden Street, East Boston.

I used Bovinine locally in a case of fistula I had operated; opening up considerable of a pocket that showed a very sluggish intention to granulate, so I heavily saturated iodoform gauze with Bovinine, and packed the cavity with it daily. Soon the granulations appeared, and the case fully recovered.

RECTAL IMPACTION, PERITYPHLITIS AND APPENDICITIS.

By Dr. T. J. Biggs, Sound View Hospital.

A—— B——, New Canaan, Conn.; age 36; May 5th, 1898. Had suffered intensely for six months, without relief, under the care of various physicians, losing 64 pounds in weight, and had become too weak to raise his head. Began Bovinine internally, with immediate improvement. By injection of soap suds, he was relieved of a tremendous quantity of fæcal matter, first in six days. On the 14th, the appendicitis suddenly developed; operation, 15th; appendix enlarged, filled with pus, and adherent entire to the cæcum: causing ulceration so serious that after dissecting it off, it was necessary to bring the cæcum to the mouth of the wound and stitch it there in order to treat the ulceration with Bovinine. This was done, with the usual depuration by peroxide-on-Bovinine twice a day; applying iodoform-Bovinine for a week, and then Bovinine pure, five times a day. Ulceration was healed and the cæcum returned to the cavity, on the 27th. Treatment of the wound with Bovinine was continued until healed June 6th; allowed to get up, 16th; discharged 18th, with 14 pounds gained and about normal strength, and was at work on his farm, feeling perfectly well, as last heard from.

PERI-URETHRAL FISTULA.

By Dr. K——, New York.

John Phillips; age 32; May 8th, 1897; abscess and operation five years before, from which, within a month, there had developed a complete peri-urethro fistula. Although for two years past the fistula had been vigorously treated, it had never been closed.

The edges of the fistula were now gently freshened; the anterior urethra and fistulous passage were thoroughly washed out with Thiersch's solution; the fistula was then packed, from without inward, with gauze saturated with iodoform-Bovinine, and the pack kept wet with the same. At the end of twelve hours the packing was removed, and, after washing out the sinus, was renewed as before. These procedures were repeated twice a day for one week, when it was found that the whole fistulous passage was budding with healthy granulations. The fistulous passage being now in a healthy granulating condition, instead of

packing, a small compress of gauze, saturated with Bovinine, was laid over the outer mouth of the fistula, and changed every three hours. At the end of a week, the inner opening of the fistula was entirely closed by healthy granulations, which were rapidly occluding the sinus throughout. Continuing this treatment until the 29th of June, the sinus was then found to be entirely closed up and healed.

PERI-URETHRAL FISTULA.

By Dr. T. J. Biggs, Sound View Hospital.

John H——, Glen Brook, Conn.; age 40; May 4th, 1898; fistula, the result of an abscess, and of thirty years' standing; had been under treatment in four of the best hospitals in the United States, and had been three times operated on, with entire failure of benefit. Examination revealed a large fistulous tract ramifying through into the membraneous urethra, through which the urine constantly passed. May 5th, I made a careful dissection of the sinus, taking it out entire. The edges of the wound were sterilized by peroxide-on-Bovinine, closed with silk sutures, and dressed with pure Bovinine, changed every two hours. May 14th, the sutures were removed, the wound having entirely healed, and the case was discharged on the 16th.

EXTRAORDINARY VAGINAL FISTULA. OPERATION REFUSED.

By Dr. T. J. Biggs, Sound View Hospital.

Jane E——; age 30; American; admitted June 7th, 1900. Diagnosis: Complete fistula, extending from the right labium major opening into the vagina on the right side, slightly anterior to the *cul de sac* Douglas. This condition was of five years' standing, and within that time the patient had been operated upon twice, and had undergone various other treatments; but, in spite of all, the fistulous tract still continued. The tract was a large one, so that a full-sized flexible probe could be carried through with ease. The walls of the fistula were so thoroughly organized that I advised operation as being the only sure means of promising a good result. This, the patient or her relatives would not permit. I, therefore, determined to destroy the tract by other means as best I could. Under anæsthesia, the largest size Geli saw was intro-

duced, and by carrying this back and forward, I finally succeeded in scraping out the walls of the sinus. Next, a piece of sterilized gauze, soaked in iodoform-Bovinine, was carried through and left in. At the end of twenty-four hours this was removed, and the sinus washed out with Bovinine-peroxide and Thiersch. Following this, a piece of gauze saturated with Bovinine pure was carried through and Bovinine pure injected. The nurse was instructed to inject the Bovinine into the sinus every two hours, thereby keeping the gauze saturated with it.

On the 13th, the sinus was in a healthy granulating condition. The gauze was now packed, first externally for about one-third of the length of the sinus, then internally for about one-third, and the nurse instructed to inject the Bovinine as before, my idea being to start the healing process from the centre, so that it would extend outwards and inwards. Although I was not particularly sanguine, nevertheless, on the 15th, I was delighted to find that a healthy healing process had begun, and fully one-fourth of the length of the sinus had filled up with the new tissue cells. From this time on, the packing was just far enough, both internally and externally, to keep the mouths of the sinus open.

On the 20th, the sinus had so far healed that packing was now unnecessary, and Bovinine was injected.

On the 26th, it had entirely healed internally.

On the 28th, it had entirely healed externally.

Coincident with the sinus treatment, the patient was put on from the beginning a wineglassful of Bovinine in milk every three hours.

On the 29th she was discharged.

This case is the only one of its kind, I believe, on record; therefore, I deem it to be of great interest, and can heartily commend this course of treatment to my colleagues.

CHRONIC SYPHILITIC ULCERATIONS AND INFLAMMATIONS TREATED WITH BOVININE.

IN GONORRHŒA.

By Thos. B. Keyes, M.D.
Surgeon and Gynæcologist to the Bethesda Free Dispensary, Chicago.

The primary treatment which I employ is to fill a two-quart fountain syringe with a warm solution of bichloride of mercury, 1 to 40,000, and irrigate the urethra thoroughly, using a No. 9 soft rubber catheter, going slowly and allowing the water to pass by its side, so as not to push the virus farther back. The urethra is irrigated about one or two inches farther back than the inflammation goes.

The fountain syringe is again filled, this time with a warm, weak solution of sulphate of zinc (one and a quarter grains to two quarts of water), and the urethra again irrigated. After having thoroughly treated the urethra by the irrigations above described, I now fill a Keyes-Ulzman's urethral syringe with Bovinine, and inserting this well back of the inflammation, gradually inject and withdraw the syringe at the same time. With most cases one such treatment is sufficient.

SUMMARY OF TWENTY-THREE CASES TREATED AS ABOVE.

In sixteen cases: eleven first attacked one to five days before treatment; and five, second attack two to four days before treatment; there were no complications, and the cure was accomplished with one treatment.

One case with phimosis, eighteen days' standing, four treatments were required.

CHRONIC SYPHILITIC ULCER OF TWO YEARS' STANDING.

By Dr. T. J. Biggs, New York.

Edward Muller; age 22; 217 West Twenty-seventh Street, New York City. Syphilitic ulcer of right leg, two and a-half by three inches, of two years' standing, had resisted all other treatments. The ulcer was curetted and dressed with a wet bi-chloride of mercury dressing for the first twenty-four hours, after which nothing but Bovinine dressings were employed. The first dressing was applied May 4th, 1894, and the patient was discharged June 12th, 1894.

CHRONIC SYPHILITIC ULCER.

By Dr. T. J. Biggs, New York.

March 3d, 1896; Edward Hines; age 29; syphilitic ulcer over the right tibia, two by one and a-half inches in extent. Thoroughly cleansed with bichloride of mercury; touched up with 25 per cent. pyrozone, and dressed with Thiersch's solution for twenty-four hours. The usual Bovinine dressing was then applied until April 6th, when the sore was entirely healed, leaving a soft little pink cicatrix, after only eighteen days' Bovinine treatment.

CHANCROID ULCERATION.

By Thomas B. Keyes, M.D., Chicago.

From among particularly bad cases of chancroid—the worst I have ever seen—I report the following: Miss M—— W—— had treated herself for about two months, when the ulceration began to extend rapidly, and when I saw her, the whole right labia majora, and to the extent of about one inch into the vagina, was deeply ulcerated. After putting on a bichloride of mercury pack for about thirty minutes, I gave her some Bovinine, which she applied faithfully, and in two weeks the sore was entirely healed.

CHRONIC CHANCROID ULCERATION.

By Dr. T. J. Biggs, New York.

Harry Rimanoczy; age 25; 831 Third Avenue, New York; Ulcer on corona of penis half an inch in diameter, of two years' standing. Application of Bovinine treatment commenced October 20th, 1893; patient discharged cured November 28th, 1893. This little ulcer had resisted all other treatments.

CHANCROID ULCERATION.

By W. H. Parsons, M.D., Omaha.

Soft chancroid, involving the glans and prepuce. The soft ulcer had been doing its work for four weeks; appeared almost malignant; various dressings had failed, such as iodoform, etc. This ulcer was packed in Bovinine and soft lint, changed every two hours the first three days, then every four hours. In thirty-six hours the diseased

tissue sloughed out, healthy granulations set up, and in ten days the patient was well, November 22d, 1895. This, in brief, is my experience along new lines—that is, new to me.

CHRONIC SYPHILITIC ULCERS, OF THREE YEARS' STANDING.

By Dr. Jos. L. Black, Chicago.

Sara Lee; age 45; three syphilitic ulcers on the left leg; had gradually grown larger for the last three years, in spite of anti-syphilitic and other treatments employed. August 10th, 1893, the ulcers were scraped and dressed with wet bichloride dressings (1-2000) for the first forty-eight hours, after which nothing but Bovinine dressings were used until the ulcers were entirely healed, September 8th, 1893.

VENERAL CHRONIC URETHRITIS.

By Dr. T. J. Biggs, Sound View Hospital.

Bert N——; age 24; January 2d, 1898; chronic urethritis, resulting from neglected gonorrhœa; gonococci, indicating iodoform-Bovinine. After washing out the urethra with a solution of permanganate of potash, iodoform-Bovinine was injected; all, three times a day. January 12th, microscopic examination revealed not the slightest trace of gonococci; consequently, Bovinine only was now employed. On the 18th, all discharge had ceased; January 26th, the case was discharged.

CHRONIC ULCERATION OF BURNS.

CHRONIC BURN ULCER OF FIVE YEARS' STANDING.

By Jos. L. Black, M.D., Chicago.

John J——; age 50; first seen August 1st, 1895, showing an extensive ulceration of the left forearm, the result of a burn received five years previous, which had never healed, in spite of all treatments. It was covered with a thick, viscid, sanguineous discharge, of very foul odor, underlying which was an unhealthy granulating surface. The ulcer was thoroughly cleansed with a solution of permanganate of potassium and dressed with wet Thiersch dress-

ing for the first twenty-four hours, after which nothing but Bovinine dressings were employed until the patient was discharged with the arm entirely healed, September 20th, 1893.

In this case, as in the others, the patient was entirely relieved of pain after Bovinine dressing.

CHRONIC BURN ULCER OF INFANT, FOUR INCHES IN DIAMETER.

By Dr. T. J. Biggs, New York.

This child—Lizzie Ziskind; 411 Seventh Avenue, New York City; age 2—must soon have died, under any former treatment, having grown enormously worse for three months. Topical Bovinine treatment commenced December 16th, 1893; discharged January 25th.

The incessant and exhausting pain of the little patient was at once and entirely removed by the Bovinine dressing.

OTHER BURN CASES OF CHRONIC ULCERATION.

By Dr. T. J. Biggs, New York.

Arthur Thomas; New York; age 38. Burn ulcer on hand, three and a-half by three and three-quarter inches, with constant and incurable pain, entirely relieved by first Bovinine dressing, January 12th, 1894, and case completed January 24th, 1894.

Daniel Burk; New York; age 35. Extremely painful burn ulcer of eight months' standing, one inch in diameter, on great toe. Entire relief from and after first Bovinine dressing, April 6th, 1894; completely healed and case discharged, May 2nd.

Emma Stearns; age 48; June 7th, 1898; ulcer of three years from burn, covering whole left side of face; twice skin-grafted, without success; utterly refused to heal, and still extending; the great trouble being that it was surrounded with so much scar that proper nutrition could not get to the part, and, consequently, the granulations covering it could not reach maturity. Usual Bovinine-peroxide depuration, followed by Bovinine only, every two hours: later, t. d.; healing completed July 8th.

In this case there was an island of ulceration in a sea of scar, with little or no natural nutrition going to it, and yet, under a topical Bovinine supply it healed rapidly and completely. Another point of great interest was this: that the

scar of the ulcer healed by Bovinine was pink, soft, and sensitive to touch; while a tremendous scar surrounding it from the original burn was white, hard and insensible, although it had had far more natural nutrition coming to it than the insulated ulcer.

ABSCESSES, GLANDULAR, MASTOID, PERINEAL, ETC., UNDER BOVININE TREATMENT.

"The treatment of abscess has always been an exceedingly unsatisfactory one to the surgeon, as well as to the patient, both from the length of time these can run, the pain attending the usual methods of treatment, with the subsequent redressings, and that in the large majority of cases a prolonged period of disability follows the primary operation."—Edwin M. Hasbrouck, M. D.

[These cases of abscess will be noted by surgeons as remarkable for such uniformly rapid, radical, painless and certain healing.]

LUMBAR ABSCESSES, LATEST TECHNIQUE.

By Dr. T. J. Biggs, Sound View Hospital.

Henry B——, Huntington, L. I.; age 36; May 1st, 1898; two lumbar abscesses. Treatment was according to the latest technique in this hospital on abscess, as follows: A trocar with canula was inserted at the lower end of the abscess, and another at the upper end, and removed, leaving the canulas in the abscess. The pus was drained out and then Bovinine was injected through the lower canula, and peroxide of hydrogen through the upper one. The chemical reaction where the two met was tremendous, almost forcing the canulas out, and continued a full minute. After the reaction was completed, Thiersch's solution was sent in through the upper canula and allowed to run steadily through the cavity and lower canula for five minutes. Following this, the lower canula was removed, and iodoform-Bovinine was injected by the upper one. Then the upper canula was removed, and a compress sufficiently large to cover the abscess sac was tightly adjusted. At the end of twenty-four hours, the compress was removed, the canulas were again inserted the abscess cavity was

depurated by the Bovinine-peroxide reaction and Thiersch's irrigation as before; and was filled with Bovinine only, this time, through the upper canula. Both were then removed, and the compress was again applied, and was not disturbed—there being no pain or inconvenience or rise of temperature—until the 10th. when the abscess was found to be entirely healed.

A second abscess, higher up, was now discovered, and was put through the same course of treatment as the former. During the entire period of treatment, the healing process was assisted internally by a tablespoonful of Bovinine in milk every three hours.

Points of advantage in this procedure, as my experience leads me to believe, are: first of all, it does not subject the patient to a painful surgical operation, and it leaves no scar. In the second place—while, of course, to obtain this result requires much more care thar the ordinary operation of opening an abscess—it does away with shock, which is so serious sometimes in the larger operations, and particularly with nervous patients.

PARENCHYMATOUS HEPATITIS, ABSCESS AND SINUSES.

Dr. T. J. Biggs, Sound View Hospital.

George Roth, Port Chester, N. Y.; age 29; October 12th. 1898; remitting fever, temperature 103.4; obstinate vomiting; great debility; melancholia; jaundice; constipation—in fact, decided typhoid symptoms.

Locally over liver, a throbbing tumor presenting limited tenderness, œdematous, and fluctuating; a careful examination revealed the fact that the abscess was about ready to open into the pleural cavity.

I advised an immediate operation, which was consented to. An incision was made over the tumor (transversely) through the fascia down to the muscle, then the largest-sized trocar introduced, and the pus pumped out, a little short of a quart being removed, after which the incision was carried down through the muscle, exposing the liver; I now introduced my finger into the wound, and found a large sinus leading almost into the pleural cavity, and another directly into the liver substance. It was by far the most extensive exudation of its kind I had ever seen. The wound and abscess cavity were now thoroughly

cleansed with the Bovinine-hydrozone reaction and Thiersch's solution, and packed with iodoform-Bovinine gauze; this was changed at the end of twelve hours, and the wound found to be in a splendid condition, and very little discharge. The cleansing and dressing were repeated as before, and at the end of twenty-four hours the wound was found to be in a healing condition, with absolutely no discharge. The Bovinine pure was now employed, the dressings being changed twice in twenty-four hours. October 21st, the cavity in the liver had entirely filled and healed, and the sinus leading to the pleural cavity had almost filled out. October 28th, the sinus had entirely filled, and the wound was in an absolutely healthy condition; the edges of the external wound were now brought in apposition and dresssed with Bovinine pure. November 6th, the wound had entirely healed; and November 7th, the patient was discharged, having gained 8¾ pounds.

ABSCESS OF LIVER.

By Dr. T. J. Biggs, Sound View Hospital.

Ed B——, New Canaan, Conn.; age 40 years; parenchymatous-hepatitis (abcess of the liver); November 1st, 1898; intermittent fever, temperature, 103¾ degrees; obstinate vomiting, debility; melancholia, jaundice, constipation, typhoid symptoms; and locally a large prominence over hepatic region, with throbbing and limited tenderness; the swelling was generally œdematous and fluctuating.

An oblique incision about five inches long was made over the liver, through the fascia, after which a careful dissection was made over a grooved director, down to the liver; the edges of the wound and the cavity were packed with iodoform-Bovinine gauze.

A large-sized trocar was then attached to a return flow aspirating syringe, then plunged into the abscess and the pus pumped out; a pint and a-half in all.

The abscess was incised, depurated with the Bovinine and peroxide of hydrogen reaction, and a careful search with the finger revealed that the abscess was just on the verge of bursting into the pleural cavity.

The iodoform-Bovinine gauze used for packing was then removed, and the abscess cavity and surrounding tissue thoroughly washed out with Thiersch's solution and pack-

ed again with iodoform-Bovinine gauze; the edges of the wound were then brought together with heavy silk sutures, leaving an opening large enough at lower end to drain the wound. A Bovinine dressing only was applied over the wound, and the patient put to bed.

The procedure of depuration and iodoform-Bovinine packing was repeated once every twenty-four hours, until the 20th, at which time it was found the abscess cavity had entirely filled up with healthy tissue, leaving only the external wound to heal.

November 30th, patient was discharged. His general condition was splendid at the end, and he said he felt quite well.

MORIBUND CONDITION FROM ABSCESS.

By Dr. C. S. Smith, Providence, R. I.

November 30th, 1894, I was called to Mr. ——, who had just returned from the Rhode Island State Hospital, where he had been for treatment of a urethral abscess. After careful treatment by the ordinary methods, during which the abscess had been opened and a tube for drainage inserted, he had steadily grown worse, and it was decided that his case was hopeless, and he was accordingly sent home to die amongst his family.

I found a temperature of 104, pulse 156, great prostration. On pressing well up in the groin, pus would flow from the tube inserted in the urethra, and an active cellulitis had begun over the perineum. From a previous use of Bovinine, locally, I thought with its help there might be a fighting chance for the man.

I at once opened up the whole area, in which there was a large amount of extremely offensive pus and decomposing fibres of tissue, and after much difficulty this was all cleaned out. I then saturated plain gauze heavily with Bovinine, and packed it in liberally, dressing every twelve hours.

After this I saw no more pus, but all my Bovinine dressings came off clean from pus.

After the patient had made excellent progress, I tried for two days dressings of iodoform and bichloride; but the second day of these dressings pus showed itself, which a return to the Bovinine dressings completely checked.

In eight weeks everything was healed, and by the continued use of Bovinine the man rapidly regained his normal strength, and is now at work for his old employers.

About this time I had a troublesome case of chancre that after a full treatment of some six weeks by antiseptic methods still refused to heal, and showed an angry, pus-depositing surface. I stopped all antiseptics, cleaned the surface thoroughly, and applied Bovinine locally, which, to the surprise and delight of the patient, caused the wound to heal entirely in a week's time.

GLANDULAR ABSCESS.

By Dr. HATCHERR, Somerville, Mass.

A case of abscess of the glands of the neck, the sequel of scarlet fever in a patient of marked scrofular diathesis, although cleaned with peroxide of hydrogen, iodoform and other antiseptics, had presistently refused to heal. The cavity that was suppurating was large enough to easily admit my thumb. Iodoform gauze, saturated with Bovinine, was packed into this large cavity; granulation soon followed, and complete union of granulating tissues was effected.

SURGERY OF CHRONIC GLAND SWELLING AND ABSCESS.

By Dr. B ——.

A boy of 12, N. H. P——, Cincinnati, had been for a year developing a swelling of the glands of the neck, which had been treated unsuccessfully by various physicians with electricity, massage, inunctions, alternatives, etc., the tumor all the while steadily enlarging. Incision was made, when the sublingual glands were found in a state of cheesy degeneration, and were entirely curetted out, and the cavity was packed with gauze, saturated with iodoform-Bovinine, while a teaspoonful of Bovinine was given in iced milk every two hours. The submaxillary glands, which had been much inflamed, now rapidly subsided to their normal state and size, together with two or three smaller enlarged glands. The dressing was repeated for two weeks, when treatment was complete.

CHRONIC ULCERS.

BOVININE FOR ULCERS.

To the Editor of the Medical Summary:

Have you investigated claims of Bovinine? It is revolutionizing treatment of the stubborn sores. Literature on the subject of its topical use is rapidly accumulating. An opportunity was lately afforded writer to test its value to specific ulcers of arms and legs. Case was an old syphilitic, who came from Cincinnati to be treated by writer. On left leg were four ulcers, on right five, and one on each arm, eleven in all. Largest ulcer was on left leg, two inches above ankle. Around leg it measured three and one-half inches, was one and a-half inches wide, and varied from one-half to five-eighths inch deep. Borders were elevated, hard and livid, surface livid, irritable and bathed in pus.

On right leg, anterior aspect was the next in size, two and one-half inches long, one inch wide, and about a quarter of an inch deep, with which connected an extensive sinus in tissues of outer part.

In calf of left, two inches below knee, was a circular ulcer, one inch in diameter and three-quarters of an inch deep, connected by means of a sinus with another. Patient had appearance of a physical wreck, could not walk, and had been under treatment for six weeks, without benefit.

Pieces of iodoform gauze, of suitable form and size, were laid on ulcers and saturated thoroughly with Bovinine, poured from bottle. At first, this was done every day, then every other day; finally, every third day. At every dressing, parts were irrigated with pure warm water.

Having never seen the like, it would be hard for one to credit any statement as to remarkable changes that took place. Only a little while after treatment was begun, large, healthy granulations could be seen sprouting up from all points and reaching out from border toward centre. In one week's time, the smaller ones were filled to level of surface.

Two weeks had not elapsed till, in the largest, several large-sized islets had been built up from bottom, and nearly a half-inch of new tissue added to border.

In three weeks, all the small sores and large one on right shin were entirely bridged over.

In one month, the largest was almost completely built in, leaving only a small, shallow spot in the middle.

This may be considered a triumph for the doctrine of rapid healing by topical feeding.

R. B. McCall, M.D.

Hamersville, Ohio.

ENORMOUS ULCER OF EIGHT YEARS' STANDING.

By Dr. Mussey, Cincinnati, Ohio.

Ellen Pryor; age 56; November 3d, 1896; chronic varicose ulcer on right leg, measuring six by five and a-half inches; had resisted for eight years all treatments laid down by the medical authorities, including two unsuccessful attempts at skin-grafting; and had never healed, even temporarily; had cut down almost to the bone, and exuded a muco-purulent discharge in exhausting quantities.

Having first prepared the surface by curetting, and sterilization with Thiersch's solution for twenty-four hours, I began the application of Bovinine exclusively, in saturated gauze, with proper protective coverings, changed twice a day for the first week, and once a day thereafter. Within the first week, improvement was manifest, healthy pink granulations springing up all over the surface of the sore. In the second week, the picture had a further change; for now, little peninsulas of new skin were putting forth from the periphery of the ulcer on all sides and running toward the centre, to lengths of about half an inch. This mode and process of repair continued to develop, thenceforward, unchecked, until December 18th, 1896, six and a-half weeks from first introduction; when a large, soft, pink scar remained, the only witness to the place of that desperate ulceration.

ULCERS OF HEAD AND CHEST.

By Dr. T. J. Biggs.

Mrs. B——, Boston, Mass.—secondary specific ulcers of head and chest—was the first one admitted to Sound View Hospital, August 20th, 1897. She was sent there in desperation from Boston by a prominent physician, one of eight consultants who had done everything possible for

her, until, in spite of all known remedies, the chest ulcer had eaten its way close to the pleura, the perforation of which, with inevitable death, was evidently but a matter of days. The curette had done in vain all that it could do but to break into the very house of life with the deadly infection; not a thing more could be done, and the sufferer was simply turned over to death. But peroxide-on-Bovinine took the case with smiling ease, depurated the noxious cavity in three minutes, and left nothing but a clean place for the healing, nourishing and vitalizing restorative—Bovinine—to occupy and fill with healthy tissue, which it did.

The preparation of the chest wound for treatment was a peculiarly delicate operation; the close proximity of the inner membrane rendering the removal of the septic matter very hazardous, so that curetting was out of the question; but Bovinine, followed by peroxide of hydrogen, was a substitute as gentle as effective in such a case. The wound being then washed out with Thiersch's solution, treatment was continued by dropping Bovinine frequently into the cavity (instead of packing it, through fear of rupturing the membrane), the patient being kept on her back in bed, until a firm layer of healthy tissue was built up from the bottom. After that, it was practicable to apply Bovinine in gauze packs, changed twice a day. The treatment of the head ulcer was more simple and ordinary. The chest ulcer, by the 26th, was half filled up with sound tissue, and in a most promising condition. At this time, the patient felt it necessary to return home, and she was discharged under protest; but in a condition now free from danger, and, without doubt, of continued progress to speedy and entire recovery by the simple applications she was provided with and instructed to make daily.

Latest observation (by letter), November 16th, 1897: visiting in New Hampshire, and reported in good health.

INDOLENT ULCERS.

By W. F. Dean, B.S., M.D., La Grange, Ill.

(Abstract from Journal of Orificial Surgery.)

Mrs. W——, of Sioux City, Iowa; October 5th, 1895; two large indolent ulcers, of over five years' standing, on the right leg, and one, of two years' standing, on the left, rendered locomotion almost impossible. One ulcer was seven inches long and four inches wide. About a finger's breadth of skin separated it from the second ulcer on the opposite side of the limb, the two extending nearly around the limb. Both feet were stiff and extended, and neither foot could be moved or in the slightest degree straightened from its extended position. The patient walked—if walking it could be called—on tip toe, with a cane. The limbs were black to the knees, while the odor from the ulcers was cadaverous, although she dressed them twice daily with a carbonized solution.

Since five years ago, everything had been done, apparently, to get them healed, but with no result. As a last resort, the patient was taken to a hospital for treatment, where she remained seven weeks, and the ulcers were healed, only to break out again in one week's time after dismissal.

In 1893 [three years later] the left limb also gave way, forming an ulcer. Since that time the condition had been steadily growing worse.

The general health of the patient should be noted as indicated by endometritis, subinvolution, and especially the state of the mucous membrane, which tore like wet tissue-paper—conditions never found in a well-nourished body.

The patient was now placed under an anæsthetic, the ulcers thoroughly curetted, and packed with a 1-2000 corrosive sublimate gauze. The following day, the gauze was replaced by strips saturated in Bovinine, changed once or twice daily.

The flesh filled in very rapidly, and by January 15th, the skin, a beautiful, child-like pink in color, covered the entire surface, and the limbs were reduced to their normal size.

When last heard from, five months afterward, the patient had so far regained her health that she walked to and from her husband's place of business, several blocks away, and had reached her former greatest weight of 205 pounds.

TRAUMATIC ULCERATIONS IN THROAT.

By Dr. T. J. Biggs.

John Manley; age 33; October 1st, 1895; tonsils and uvula had been removed, and the stumps badly ulcerated; many days unable to swallow food, and almost starved. Rectal injections of Bovinine, and wounds sprayed with iodoform-Bovinine, until so far healed that he could take Bovinine and milk by the mouth, and the treatment was completed November 5th.

CHRONIC ULCERATION.

By Dr. D——, New York.

P. Devanney; age 60; May 3d, 1897; traumatic ulcer on the right leg, four or five inches in dimensions, the result of a kick of a horse two years previous. The contusion and laceration had been so severe that the wound could not be healed, and rapidly broke down into an ulcer, which resisted all treatments employed on it at various hospitals and at the offices of no less than eight competent physicians. The ulcer had cutdownthrough the several layers of fasciæ, and the upper surface of the muscles had been severely encroached upon. The crest of the tibia was exposed to a length of one and three-fourths inches. The centre of the exposed bone was denuded of periosteum for half an inch, with a slight surface necrosis. After aseptic preparation, the necrosed bone cells were removed with the curette, and the whole surface of the ulcer was touched with 25 per cent. pyrozone and dressed with a wet Thiersch pack. After forty-eight hours' continued treatment, the ulcer showed a healthy, clean condition, ready for the absorption of Bovinine. Eight layers of gauze, saturated with Bovinine, were laid over the surface of the ulcer, and covered with rubber tissue, sheet lint, and a roller bandage from the foot to the knee. This dressing was changed twice a day, and later, once a day. In just nine days, the portion of bone that had been denuded of periosteum was soundly covered, and little peninsulas of healthy tissue were shooting out all over the ulcerated surface. This rapid process of repair ended, June 19th, in the complete healing of the ulcer, with its site marked only by a soft, pink scar

CHRONIC AXILLARY ULCERATION.

By Dr. D——, New York.

Henry Fish; aged 19; June 4th, 1897; old abscess cavity in the right axilla, which had refused to heal or even to granulate, in spite of every treatment in the established practice. I washed out the cavity thoroughly with Thiersch's solution, and packed it with gauze saturated with iodoform-Bovinine, every four hours, for three days, and twice a day for the ensuing six days. By the tenth day the cavity was beginning to fill up from the bottom, and was shooting out healthy granulations from all sides. July 8th, it was found to be entirely filled up and healed, with a broad, flat, soft cicatrix.

CHRONIC ULCERS, WOUNDS, FISTULAS, ETC.

By Lawrence G. Kemble, M. D., Boston, Mass.

In my Bovinine treatment of multiple chronic ulcers, wounds, tissues, fistulas, etc., by saturated compresses and subcutaneons injection, the rapidity of healing has been remarkably satisfactory and successful.

CHRONIC ULCERS FROM VACCINATION.

By Dr. T. J. Biggs, Sound View Hospital.

Sam S——, Stamford, Conn.; aged 30; March 22nd, 1899; diagnosis: ulceration of left arm, result of vaccination two months previous. This condition had refused to heal, although he had been under the care of three different physicians in that time. It was about the size of a silver half-dollar; had cut down to the muscles; was covered with unhealthy granulations and exuding a foul-smeeling, purulent discharge. The sore was now depurated with Bovinine and hydrozone, irrigated with Thiersch's solution, and dressed with Thiersch-Bovinine. This was repeated every two hours, up to the 25th, at which time the sore being in a healthy granulated condition, Bovinine pure was employed as a dressing, and changed four times in twenty-four hours, up to April 5th. At this time the sore had been reduced to about the size of a pin-head. Bovinine dressings were now renewed twice in twenty-four hours. April 7th he was discharged, with hardly the sign of a scar

CHRONIC ULCERS.

By Dr. T. E. DAUGHERTY, Baltimore, Maryland.

I know of no better way to show my gratitude for the existence of such an article as Bovinine than to mention my experience with it, which has been most gratifying.

Case I. was a man who had been coming to one of our city dispensaries for a period of two years, where I had treated him for two large chancroidal ulcers, situated on the scrotum. All ordinary modes of treatment had been resorted to without the slightest signs of improvement. I finally concluded to try Bovinine treatment and had him come to my office, when I began treatment anew by curetting the surfaces and applying a wet Thiersch dressing for two days, which left them in condition to absorb the Bovinine, which was then applied daily for ten days, when the case was discharged, ulcers perfectly healed.

I had similar experience with two cases of chronic ulceration of the leg. I am not an advocate of many proprietary articles, but Bovinine cannot be praised too highly, and for the sake of suffering humanity I trust its properties may be known universally.

SUNDRY OLD ULCERS. HEALED BY BOVININE.

By Dr. T. J. BIGGS, New York.

Anna Battey, recorded elsewhere (the healing of a varicose ulcer of eleven years' standing, in twenty-eight days, October, 1893), came again April 6th, 1896, after two and a-half years, with a traumatic ulcer of a different part, the former ulcer having been permanently healed. With the usual preparatory and Bovinine treatments down to May 2nd, the new sore was entirely healed like the former, only in two days' less time.

Mary Byrne, 205 East Fortieth Street, New York City; age 40; October 10th, 1893. Varicose ulcer six by two and a-half inches on the left leg, of fourteen years' standing, also on right leg, of three months. Constantly treated at various clinics, but never healed. Used Bovinine treatment; small ulcer healed in twenty-five days, and the large one in eight weeks, and the leg restored to normal size.

Bridget Welsh, 295 Delancy Street, New York City; age 65; November 8th, 1893. Varicose ulcer of twenty years' standing; had never been healed; great pain, entirely removed at first application of Bovinine treatment. Healing completed December 25th, 1893.

Mary Breitfuld, 644 Third Avenue, New York City; age 48; February 20th, 1894. Varicose ulcer, three and a-half by two and a-half inches, of six years' standing; suffered so much pain that she wished the leg amputated; Bovinine dressing at once removed all pain. Case discharged on April 2nd, 1894, perfectly healed.

Kate Keller, 605 East Sixteenth Street, New York City; age 55; October 31st, 1893. Varicose ulcer, outer side of right knee, three-quarters of an inch in diameter. Healing completed December 1st, 1893.

Mary Ann Callery, 110 Sanford Street, Brooklyn; age 60; October 15th, 1893. Varicose ulcer of right leg, one and a-half inches in diameter; three years' standing; various treatments, never healed. Healed completely November 10th, 1893, and case discharged.

Margaret Donovan, 7 Oak Street, New York City; age 50; November 13th, 1893; varicose ulcer, two inches in diameter, of two years' standing, never healed. Healing completed December 19th, 1893, with Bovinine treatment.

Nellie Ravora, 208 East Twenty-fifth Street, New York City; age 25; January 1st, 1894; indolent ulcer, one and three-quarter inches in diameter; extremely painful, but entirely relieved by first application of Bovinine. Ulcer healed February 3rd, 1894.

Hannah Kerwin, 1,499 Lexington Avenue, New York City; age 65; December 7th, 1893; indolent ulcer, two by one and a-half inches of two years' standing. Discharged January 28th, 1894, ulcer healed.

James O'Connor, 195 Third Avenue, New York City; age 55; June 4th, 1894; indolent ulcer, two by three inches, of five years' standing. Ulcer healed, and case discharged July 16th, 1894.

FOUR YEAR ULCERATION.

By Dr. T. J. Biggs, Sound View Hospital.

Annie Carr; age 36; New York. Dr. F—— sent this case to me, September 13th, 1897. Patient had a large ulcer on the right breast, two by one and three-quarter inches,

which had resisted all treatments for four years. After curretting, pyrozone, and Thiersch's dressings, finding it of a healthy appearance, dressings of Bovinine were applied twice in twenty-four hours, and later, once a day, until on October 10th the case was discharged, ulcer completely healed.

CHRONIC TRAUMATIC ULCERATION.

By Dr. T. J. Biggs, New York.

Mrs. Crummey, 303 East Thirty-fifth Street, New York City; age 55; at Demilt Clinic, October 9th, 1894. Traumatic ulcer of leg from contusion, two inches in diameter; foul and covered with unhealthy granulations, exuding a thick viscid sanguineous pus; indurated and undermined; also considerable phlebitis. Cleansed, curetted, and dressed with wet bi-chloride; next day, gauze saturated with Bovinine was laid over the ulcer; over this, sheet lint, oiled muslin and bandage. Dressed thus daily; in three weeks the ulcer was completely healed.

SIX-YEAR VARICOSE ULCER.

By Dr. D——, New York.

Henry Mercer; age 70; October 20th, 1896; varicose ulcer, middle of left tibia, three by two and a-half inches in extent, of six years' standing, having never been healed, under all the usual treatments. On the 21st, the ulcer was gently curetted, touched up with 25 per cent. pyrozone, and dressed with Thiersch's solution for twenty-four hours. On the 22nd, the wound was cleansed with Bovinine and peroxide of hydrogen, and dressed with pure Bovinine, changed every day until November 6th; then every other day until healing was completed, November 12th; total, twenty-three days, to end the despair of six years' regular surgery.

ULCER HAD RESISTED TREATMENT THREE AND A-HALF YEARS.

By Dr. L——, Cincinnati, Ohio.

Floran Atkins; age 45; September 14th, 1896; varicose ulcer of right leg, two and a-half by two and three-quarter inches; had resisted all treatments for three and a-half years. Curetted and sterilized, cleansed with peroxide, and Bovinine dressing only applied daily. The sore healed rapidly, and on October 18th (at thirty-four days) the patient was discharged.

ULCERS, ETC.

By L. L. Bryant, M. D., Cambridgeport, Mass.

I am now using Bovinine locally in all my cases of ulcers, etc., both in my private practice and at the Cambridge Almshouse. At the latter place I have had several severe, old-standing cases, some of *ten to fifteen years' duration.*

BELLEVUE HOSPITAL CASES, NEW YORK.

By J. Heller, M. D., Surgeon O. D. Department.

TRAGICAL CASE OF BURNS IN THE JACKSON FOUNDRY.

Timothy Monagan, of 206 East Ninth Street, while carrying a ladle filled with molten iron at the Jackson Foundry on July 17th, 1898, was badly burned by having the liquid spilled all over his body in consequence of the breaking of the handle of the ladle. The metal splashed over him, burning him severely, his shoulder and forearm receiving the largest burn, which measured twelve by five and a-half inches, destroying skin and fascia, also the muscular tissue in places. A burn on the back, one by two and a-half inches; four burns on the neck; three on the side; eight on the chest; and three on the abdomen. He suffered intense pain until an application of Bovinine was made, when the pain left him and did not return.

I treated him by placing two thicknesses of cotton flannel thoroughly saturated with Bovinine and laid over the burns; this covered with oiled silk to prevent evaporation; then a bandage, and dressed every second day. On August 5th he was able to return to work.

CHRONIC ULCERS.

John Greely had suffered for *twenty years* past with large leg ulcers, which resisted all treatment heretofore prescribed, and emitted a very fetid odor. At the suggestion of a professional brother, I was induced to try Bovinine on this and the following cases. The ulcers were depurated with the reaction of peroxide of hydrogen on Bovinine previously applied, and then thoroughly washed, and dressed daily with cotton flannel saturated with Bovinine. All pain ceased, and, to my further sur-

prise, the ulcers immediately began to heal, and were entirely closed in three weeks. This was the first case where I had ever seen any treatment give such marked results.

CHRONIC AXILLARY ABSCESS.

Georgie Fuller, age 11, had an axillary abscess which resisted treatment by the ordinary means, until, as a last resort, Bovinine was used, topically and internally. After opening and draining the abscess, the standard depuration by peroxide-on-Bovinine, was followed by topical tissue feeding with Bovinine applied in gauze saturated and packed into the cavity, and renewed from day to day. Very little pus discharge took place after beginning this treatment, and the cavity rapidly filled with healthy tissue, until, in three weeks, it was entirely closed and the patient discharged.

BELLEVUE HOSPITAL CASES, NEW YORK.

ECZEMA OF LEGS.

Jane Foster, age 23; received topical treatment for eczema of legs, which had resisted all treatment for three years past at the various clinics of the city. Daily Bovinine dressings for twenty days only were necessary for successful treatment in this case.

CHRONIC ABSCESS OF TWENTY YEARS' STANDING.

Delia Molam, age 50; had suffered with an incurable abscess for *twenty years*, and for the last year and a-half had been through constant treatment at three hospitals, without result. After the usual draining, and the novel depuration with peroxide-on-Bovinine, the cavity was packed with gauze saturated with Bovinine pure, changed daily. After the third treatment all discharge stopped, and in two weeks from the first treatment the abscess was healed. In view of such unprecedented work, I know not how to say enough for the value of this simple treatment.

SENILE ULCER OF LEG.

Michael Donovan, age 68; very weak and emaciated; a discouraging case of intractable senile ulceration. With Q., I., and Str., and also Bovinine in milk internally

and Bovinine nourishing the lesion externally, to my surprise the ulcer healed very rapidly and completely in six weeks; the patient meanwhile having grown stronger than he had been for years.

OLD INDOLENT LEG ULCER.

Charles Berry, age 40; had suffered for years with an indolent ulcer of leg, which had never healed under any of the usually-known treatments. This case was cleansed and curetted, depurated with peroxide-on-Bovinine, and dressed daily thence forward with Bovinine only, for two weeks, at the end of which time the ulcer was healed.

CASE OF BUBOES.

Billy Williams, age 24; suffered with buboes, which for a year past had been discharging constantly, and nothing seemed to help him. Treatment was tried by injecting peroxide of hydrogen and Bovinine, with remarkable success. Treatment was completed in four weeks.

SEVERE BURNS.

Charles Scheppsky, age 38; electrician; treated for severe burns of arm and hand. Bovinine application removed pain, hastened granulation, and healed the wound in three weeks—less time than I have ever known a cure of an equally severe case.

BELLEVUE HOSPITAL CASES, NEW YORK.

BRIEF CLINCAL MEMORANDA.

Emma Comeford, 323 East 35th Street: Chronic ulcer of heel; had resisted treatment for over a year. Was completely healed in one month.

William Cockley, 416 East 10th Street: Severe burn on the back of hand. Healed in fourteen days.

Michael McMara, 741 Second Avenue: Varicose ulcers, one of sixteen years' standing and another of five years, under all previous treatment. Both entirely healed in eight weeks by topical Bovinine nutrition.

John Ahearn, 300 East 45th Street: Syphilitic leg ulcer of more than a year's resistance to treatment. Healed in six weeks by the same agent as the former cases.

Thomas Larkin, 44 East 85th Street: Severe burn caused by electricity, December 20th, at 96th Street electric power-house. Time of topical Bovinine reconstructive treatment, three weeks.

George Ebard, 197 Mulberry Street: Traumatic ulcer on leg from kick of a horse. Same topical feeding as above; case discharged in five weeks.

Andrew Shaughnessey, 262 Grand Street: Ulcer following typhoid fever. Same treatment as the others; completed in five weeks.

Michael Kelly, 240 West 19th Street: Ulcer of four years. Healed in four weeks; same treatment as foregoing.

Thomas Gunn, 447 East 26th St. Hand burned by explosion of an oil stove. Local treatment as above, completely healed inside of three weeks.

Pat. Fellows, Mills Hotel No. 1, City: Chronic ulcer on right leg, of over six years' standing. Healed in five weeks with topical Bovinine applications.

Thos. O'Neil, 591 Brown Street, City: Two chronic leg ulcers of over a year, caused by stone falling on leg. Healed in four weeks.

Thos. Buckley, City: Chronic ulcer on leg, of one year. Healed in four weeks.

John Goldin, 127 Varick Street, City: Chronic ulcer, of twelve years' standing. Healed in eight weeks.

Jas. McElheney, 242 East 87th Street, City: Chronic leg ulcer, of several years' standing. Healed in four weeks.

Thos. Strous, 146 Mulberry Street, City: Specific ulcer on leg. Healed in eight weeks.

Chas. Scone, 32 Thompson Street, City: Varicose leg ulcer of several years. Healed in seven weeks.

Wm. Gamble, 420 East 26th Street, City. Varicose leg ulcer. Healed in eight weeks.

BELLEVUE HOSPITAL CASES, NEW YORK.

John Noland, 228 East 12th Street, City: Chronic leg ulcer. Healed in five weeks.

Patrick Milligan, 546 East 15th Street, City: Chronic leg ulcer. Healed in four weeks.

Wm. Coghlan, 416 10th Street, City: Severely burned hand. Two weeks' treatment only.

Chas. Bank, 343 East 22nd Street, City: Burns on hands. Healed in ten days.

George Hess, 397 Broadway, City: Chronic leg ulcer of several years. Healed in five weeks.

James Flanagan, 315 East 37th Street, City: Fingers frozen. Length of treatment, two weeks.

Rose Marky, 305 East 24th Street, City: Chronic leg ulcer, of several years. Healed in six weeks.

James Dewneley, 342 East 23rd Street, City: Chronic leg ulcer of several years. Healed in six weeks.

Adolph Kaly, 74 East 1st Street, City: Chronic Varicose ulcer, of two years. Healed in seven weeks.

Pat. Welch, 405, East 19th Street, City: Chronic varicose ulcer of several years. Healed in four weeks.

W. Weeks, 288 Bowery, City: Chronic ulcer of four years' standing. Healed in four weeks.

J. Smollem, 8 Jackson Street, City: Chronic leg ulcer of three years. Healed in five weeks.

Chas. Fagan 200 Eleventh Avenue, City: Chronic leg ulcer, of one year. Healed in three weeks.

J. Johnson, 309 East 89th Street, City: Abscess; was washed out with peroxide hydrogen, packed with gauze saturated with Bovinine; dressed daily. Healed in four days.

W. Jackson, 110 East 54th Street, City: Necrosis of jaw-bone; bone scraped and packed with gauze saturated with Bovinine. Healed in six days.

John Golden 27 Vestry Street, City: Chronic ulcer of several years. Healed in three weeks.

M. Kelley, 240 East 19th Street, City: Chronic leg ulcer. Healed in four weeks.

L. Hardyan, 324 East 37th Street, City: Chronic leg ulcer. Healed in four weeks.

Mary Cibrane, 31 Hamilton Street, City: Hands burned severely. Healed in two weeks.

Rose Sapella, 224 First Avenue, City: Chronic varicose ulcer. Healed in four weeks.

Ed. Smith, 10 Remington Street, City: Frost bites; dressed with gauze saturated with Bovinine. Only five days' treatment.

James Cavin, 302 East 35th Street, City: Hands and arms burned in burning building; dressed with Bovinine. Healed in two weeks.

BOVININE IN CHRONIC ALCOHOLISM, AND THE MORPHINE HABIT.

BY THE EDITOR "MODERN MEDICAL SCIENCE."

I have been for ten years past intimately acquainted with a gentleman afflicted with hereditary alcoholism aggravated by habit. Periodically—or sometimes out of period, through some cause of unusual excitement—the onset would occur, when a single glass of spirits would suffice to instantly degrade a bright and cultivated intellect to maudlin imbecility, with as little self-direction or self-respect as the howling wind. In fact, I have seen all this when I knew that nothing alcoholic had passed his lips. But whether with or without an initiatory glass, the inevitable storm went on throughout the completed cycle of debauch.

But there came a time when various severe constitutional or functional disorders began to prevail, and the paroxysms, became furious, with horrid delirous hallucinations. The attacks became more frequent, and were heralded by loathing of food, sinking and faintness at the stomach, deadly pains in the chest, struggling for breath, etc.; relieved in the old way, by a determined resort to the whisky bottle, with aggravated consequences of protracted debauch and delirium, terminated only by exhaustion which came so near to death that it often seemed as if all was about over. The disease of alcoholism had been all along complicated in a measure with the opium habit.

Able physicians were now doing all they could for him. Nitrate of amyl revived him from the syncope of suffocation, and the compound tincture of cinchona bolstered him up from one attack to the next, as a substitute in part for the more inflammatory whisky. All the anti-alcohol and anti-opium palliatives known to the profession had been already exhausted in vain on the milder stages of the case. Despair settled down on the family and friends, not only for him but for themselves.

The testimony of Dr. Brackett, of Boston, and others, who had nursed such cases back to health on Bovinine, came as a ray of hope. Bovinine in milk at frequent intervals now became the diet of the inflamed and degenerated stomach that could relish nothing and bear hardly anything. The attacks were soon diminished in frequency and in their desperate character. By and by, it became possible to abort them entirely at the onset, by steady Bovinine treatment, without the aid of stimulant or tonic. The only relapse that has occurred was the result of an ignorant interruption of the treatment by a person temporarily in the place of the proper nurse. It was a bad relapse for the time, but was speedily overcome by Bovinine; and now, for more than three years, the man has been himself, in total abstinence, all the time. This, notwithstanding the condition of a system debilitated and racked, in old age, with the varied disorders consequent on the terrible abuse of himself—disorder so severe that it seemed as if he must succumb to them, apart from alcoholism, but for the constantly revitalizing and reconstructive supply of Bovinine.

ALCOHOLISM AND DELIRIUM TREMENS.

At the Massachusetts Asylum for Inebriates, at Foxboro', it is the custom, when a patient is brought in all of a shake from the effects of alcohol, to give him a full cup of Bovinine and water, to which has been added from thirty drops to a teaspoonful of tincture of capsicum.

Moderately hot water (not above 80 degrees F.), with Bovinine, is also administered at the same institution to patients showing symptoms of approaching delirium tremens.

CHRONIC MORPHINE HABIT.

By Dr. T. J. Biggs, Sound View Hospital.

The use of Bovinine in the various forms of narcotism, sustaining as well as restoring, under privation of the stimulant, has been well established in the practice of such specialists as Drs. Crothers, of Hartford; Mattison, of Brooklyn; and others.

George M——, of New York; merchant; age 30; first seen in consultation, September 2nd, 1898. This patient had suffered from circumscribed peritonitis and thickening,

with severe pain and tenderness, on account of which his physician had prescribed morphine in small doses; but he had taken to it in his own way until the habit was fastened on him. He had tried hard to break it off, but always with great consequent prostration, irritability of stomach, and vomiting of everything eaten, until in thirty-six hours or so he was driven again to the drug for relief. Under this slavery, he would resort to whisky and beer to overcome the misery to privation. He tried many different physicians, but, of course, with no avail. When I met him, he was taking the stimulants, to endure the want of morphine, and then, alternately, taking more morphine to keep off intoxication, taking sixty grains in two days. Dr C—— had tried all the nerve tonics and stimulants to reduce the doses of morphine, without success. I now strongly advised Bovinine, with the morphine reduced by half.

He was put on tablespoonful of Bovinine every three hours, and fifteen drops in port wine whenever he felt the need of morphine, which was about six times a day. For two nights he was allowed one-eighth grain of morphine. The third night he had no morphine, and has had none since. He had slept fairly well the first night, and every night better, until by the fifth night his sleep was satisfactory. He now took a wineglassful of Bovinine in milk every three hours. On the 16th, he said he felt and rested well, suffered not all. Last seen October 6th, still taking Bovinine, with no desire for either stimulant or morphine, and would not touch them for the whole world. He had gained in flesh 7 pounds. As the cure is physiologically and thoroughly restorative, not artifical, the best hopes may reasonably be entertained for its permanence.

CHRONIC ALCOHOLISM AND GASTRITIS.

By Dr. GETCHELL, Brewer, Me.

I have found Bovinine retained on the stomachs of alcoholic patients, when nothing else could be. If the first dose is rejected, follow with a second, which rarely fails of retention. Where there seems to be choleraic complication, I add a few drops of tincture of capsicum,

DELIRIUM TREMENS.

By H. F. Brackett, M. D., Boston, Mass.

I was called to Mr. C——, and found him furiously insane from "Mania a Potu." After the mania subsided, all the acute gastric symptoms were manifested, with a total inability to retain food -all but your preparation, Bovinine, which I began to use by adding two teaspoonfuls to a goblet of water, of which a teaspoonful was given every ten minutes the first day, gradually increasing the strength day by day, with the most happy results of fully maintaining the patient's strength and preventing the exhaustion which so often sets in, causing a fatal termination of the disease. I am convinced that if physicians would but give a portion of the care and study to your valuable food remedy they do to ordinary medication, they would realize the great value of Bovinine in general practice.

ALCOHOLISM AND NARCOTISM.

Cases by T. D. Crothers, M. D, in Quarterly Journal of Inebriety.

For some time past we have given Bovinine in cases of exhaustion and extreme debility, with good results. Recently a case of general prostration, following the removal of morphia, was given Bovinine exclusively as a tonic every three hours After the fourth dose a decided improvement began. The nervous irritation became less, and a short refreshing sleep followed. The exhaustion grew less, and the heart beat stronger and less frequent. The second night he slept soundly for four hours. The improvement was steady and rapid for the next four weeks, until discharged. This case was a chronic neuropath, and a great variety of distressing neuralgias are sure to follow when morphia is withdrawn. In this instance very little neuralgia followed, and was of short duration, and less acute than usual. The absence of the usual insomnia could only be referable to the action of the Bovinine.

The second case was that of a former opium inebriate, who suffered from neuralgia, confined to the nerves of the upper extremities. At times he feared he would have to use opium again for relief, and this greatly distressed him. I tried various remedies, but had to change them often to prevent the contraction of an addiction for any drug.

Finally, I gave two ounce doses of Bovinine four times a day. The result was that after two days he improved steadily, the neuralgias disappeared a week later, and now, five weeks after, there has been no return of the pain. He still uses Bovinine, only in smaller doses, and has increased in vigor and strength materially.

In a third case, from which the morphia was withdrawn followed by the usual nausea, with colic pains and general weakness, Bovinine was given in two-ounce doses. After the second dose it was retained, and all the acute symptoms subsided, and recovery followed without any unusual symptoms.

A DISTINGUISHED PATIENT.

(General U. S. GRANT, Late President U. S.,

From General F. D. Grant.

During the last four months of his life, the principal food of my father, General Grant, was Bovinine and milk, and it was the use of this incomparable nutrient alone that enabled him to finish the second volume of his personal memoirs.

From General Grant's Physician, Dr. J. H. Douglass.

I have embodied my experience with Bovinine in the case of General Grant, in my narrative of "The Last Days of General Grant."

My attention was first called to the preparation by the Hon. Salem H. Wales, of New York, who sent me a quantity, which I critically examined before using, and compared with the various foods which had been most liberally supplied me. I commenced its use some time in April, 1885, and my record reads as follows:

The liquid nourishment recently used was a preparation known as Bovinine. This continued the General's principal nourishment during the remainder of his life, he taking it well and with satisfaction up to the 21st of July, when his ability to swallow failed.

BOVININE IN SURGERY.

SOME SUGGESTIONS IN TECHNIQUE.

Antiseptic Preparation of Operating Field, of Morbid Surfaces, etc.—The method of Prof. E. H. Pratt, of Chicago (see page 158), appears at present to be most comprehensive, not only for the "operating field," as a substitute for the usual process of soap, scrubbing, shaving, and irrigation with bichloride and other antiseptics, but also as a searching antiseptic for suppurating lesions of any kind, superficial or deep; annihilating pus and stench, and overpowering septic agencies (as well as pain) throughout the course of a sinus fistula for instance, while, at the same time, administering a bland st mulus and a healing and reconstructive blood supply even in the brief moment of its operation. The method is simplicity itself. After fairly washing the operating field, apply Bovinine generously, rubbing it into the skin (or, in the treatment of sinus abscess, diphtheritic membrane, etc., bathing, spraying or packing freely with it, by means appropriate to the case), and immediately add to such application peroxide of hydrogen sufficient to produce a lively effervescence, which is accompanied by a noticeable degree of heat. Then wash off, or wash out, the frothy product with plain water or antiseptic solutions, as the part affected may bear or require. Bichloride of mercury, 1-3000, is chosen as the more powerful antiseptic in case of persistent pus; otherwise, Thiersch's solution is sufficient and less irritating. Operation and dressing may then proceed at once; including suitable applications of plain Bovinine at suitable intervals; alternated, if necessary (in case, for instance, of persistent exudate of pus, or diphtheritic membrane), with repetitions of the peroxide-on-Bovinine process.

In treatment of throat, nose or ear, the mucus membrane may be cleared by Professor Pratt's method, or sprayed with equal parts peroxide and water, followed by spray of iodoform-Bovinine, on a surface ulcerated, feculent or pussy; but on simple inflammation use plain Bovinine.

In corneal ulcers and other eye affections, erysipelas, eczema, etc., a constantly fresh application of plain Bovinine, bi-hourly to daily, as the case may require, is all-sufficient for antisepsis and healing, and evidently preferable to the admixture of harsher agents.

Treatment of Ulcers.—Cleanliness and asepsis constitute the first and last condition of success; secured by first thoroughly cleansing the ulcer and its neighborhood with warm water and a pure quality of soap; shaving the surrounding parts with a razor, and wiping out excretions of the skin with ether; and then applying to the ulcer hydrogen peroxide, 25 per cent., pyrozone, permanganate of potash. (Professor Pratt's mode of antisepsis with peroxide-on-Bovinine, hereinbefore described, is simpler, and has the advantage perhaps in directly and at once initiating the reparative action of Bovinine in some measure).

The surface and edges of the ulcer are to be next stripped of dead tissue with a sharp curette; preferably without topical anæsthetic; though for nervous patients it may be sprayed, through an atomizer, with a mixture of chloroform two and a-half drachms, sulphuric ether four drachms, and menthol fifteen grains.

Irrigate with hyd. bichloride, 1-3000, and dress with sterilized gauze saturated with same, covering well beyond the edges of the sore; over this a bandage similarly saturated; then oiled muslin or silk, or rubber tissue; and enclose the whole limb with cotton batting secured by a bandage.

After twenty-four hours replace the bichloride dressing with Thiersch (after washing parts with same): not with bichloride, which would coagulate the albumen, and separate and break up the blood corpuscles, if brought into contact with the Bovinine now to be applied.

The next twenty-four or forty-eight hours revealing a thoroughly aseptic condition of the wound, it is covered with sterilized gauze saturated with Bovinine and well overlapping; or packed beneath the edges if they are undermined; protected by external dressings as before; changing daily, and watching the condition of the sore, for the removal of any unhealthy granulations, etc. The nourishing Bovinine supply will now be eagerly sucked up by the perishing embryonic tissue, bleaching out the gauze daily, and requiring a daily change saturated with fresh Bovinine, until the progress of healing may reduce the requirements to a new dressing every other day. Or, where perfect asepsis is established and maintained, it may be equally safe and more convenient (especially in

skin-grafting) to leave the case undisturbed under a thick pack of gauze which is replenished without removing it, often enough to keep it constantly saturated with Bovinine, until healing is decisively advanced. To hold the Bovinine to a rectal ulcer, the rectum is lightly packed with sterilized gauze saturated with the same,

Skin-propagation from minute "grafts," in Bovinine. —The operating field and its neighborhood is first cleansed by Professor Pratt's method, of peroxide-on-Bovinine (as hereinbefore described), washed off with Thiersch's solution; and (in case of need apparent), the parts, if ulcerous, kept under wet antiseptic dressings in sterilized gauze—mercury bichloride if pus seems persistent, otherwise Thiersch —for twenty-four hours. A second dressing with Thiersch in a salt solution (teaspoonful of salt to the quart) may be advisable according to circumstances for a second twenty-four hours; determined by inspection; if the surface shows unhealthy granulations, gently curette them away, and give twenty-four hours' antiseptic dressing.

When the surface appears to be in a healthy aseptic condition, a few minute bits of skin (such as may be conveniently taken from any part previously cleansed, shaved and wiped off with ether), are sterilized in a bichloride bath (1-3000), dried with absorbent cotton, and placed symmetrically at moderate intervals (half an inch from each other and the true skin, will be close enough); then secured in place by strips of rubber tissue half an inch wide, covering the whole surface and bound on with a bandage of sterilized gauze saturated with Bovinine diluted with half as much salt water; this protected from evaporation with oiled silk, well covered with cotton wool, and secured by bandage. After forty-eight hours remove the outer dressing, and renew the Bovinine-saturated gauze, repeating this daily, or every other day, according to progress. A later and simpler method, by constant feeding of the Bovinine through a thick pack of saturated gauze, with some advantages on condition of permanent asepsis, has been indicated under the head of ulcers.

NOTE.—Care should be taken not to apply solutions of corrosive sublimate, strong carbolic acid, acetate of lead, tannic or mineral acids, strong alcoholic liquors, boiling liquids or any substance which precipitates or coagulates

albumen, co-incident with this method of treatment; or, if they have been used, the surface should be washed with plain water before applying Bovinine.

☞ In this class of treatment (ulcers, skin propagation, etc.) it is important that Bovinine be given *internally* very freely, while it is used topically, in order to correct anæmic condition always present in such cases and to repair waste, thereby greatly aiding external nutrition.

Treatment of Abscess, Sina, Fistula, etc.—In case of abscess, incision should be made at the lowest point, for perfect drainage, and large enough for easy curetting and packing of the cavity. After emptying the cavity fill it half-full of Bovinine, into which inject peroxide of hydrogen, wash out the frothy effervescence resulting, with Thiersch's solution, then thoroughly curette the walls of the cavity, and wash it out again with Thiersch's Pack the cavity with gauze saturated with iodoform-Bovinine, cover with Thiersch's-saturated gauze, oiled silk, cotton and bandage, and leave it for forty-eight hours. Then remove the packing and irrigate the cavity with Thiersch's, inject either 5 per cent. pyrozone or peroxide of hydrogen, dry it with absorbent cotton, pack with iodoform-Bovinine gauze, and dress as before. Now granulation will begin to spring up, healing from the bottom, and less packing will be necessary, changing it daily in plain Bovinine, with adaptation to the growth of granulating tissue, and diminishing the frequency of dressing as the healing becomes advanced.

Necrosis of Bone is treated on the same principles as abscess. Sponge grafting may be resorted to, instead of simple ovinine packing in gauze to be Bremoved. After cutting out dead bone and sterilizing, thin slices of sterilized sponge saturated with Bovinine are laid one at a time in the bottom of the cavity and covered with Thiersch's gauze packing, dressing daily until the layer of sponge becomes vitalized tissue, then applying another, and so on, until repair with new bone is complete. The treatment of the flesh wound, or incision, after repair of abscess or bone, is the same as in ordinary surgery.

A sinus is another situation for treatment analogous with that of abscess.

Rectal Injection.—For rectal diseases and also for hæmorrhage exhaustion or collapse, for shock, for diseases of or affecting the stomach and other parts of the alimentary canal, or in any of the exhausting diseases where nutrition cannot be sufficiently or quickly enough supplied by the mouth, Bovinine is combined with either milk or a neutral salt solution, preferably from four to eight ounces in a preparation of two parts of Bovinine to one of the other, and injected with a large size soft rubber catheter attached to the syringe and introduced about eight or nine inches to reach the sigmoid flexure. If the rectum is filled with fæces, it should be washed out before ntroducing the Bovinine.

Hypodermical Injection.—Bovinine is supplied subcutaneously where an instant response is required, as after hæmorrhage or severe shock; in a proportion of one part to two of neutral salt solution (teaspoonful plain salt to pint of water) warmed to 100 degrees F. A good size aspirating needle should be selected, and everything should be cleansed and sterilized before proceeding. After carefully preparing the surface, inject the fluid deeply into the soft tissues of either buttock, after which gentle massage should be employed for about ten minutes.

MISCELLANEOUS CASES.

BOVININE AS A TISSUE-RECONSTRUCTIVE.

From the Public Health Journal.

To Whom it May Concern: After a protracted use of the preparation known as Bovinine, I am convinced that our Pharmacopœia has received a valuable and sterling addition. Dr. Howship Dickinson, of London (Eng.), has very aptly defined neuralgia as the "prayer of an impoverished nerve for fresh blood." With uninterrupted success, I have found Bovinine to be the answer to the prayer. In all ailments which are accompanied or followed by great cardiac depression, notably diphtheria, I have found Bovinine to be invaluable. In looking back over a miscellaneous collection of surgical reports of my own cases, the one fact which stands out promiently is the invariable success which I had with Bovinine as a tissue reconstructive.

ERNEST ROACH, M.D., R.C.S., Eng.

121, East 82nd Street, New York City.

WIDE RANGE OF USEFULNESS.

By W. S. Morrison, M.D , St. John, N. B.

I have proved the efficacy of Bovinine in uterine hæmorrhages, exhaustive diarrhœas, nervous prostration, excessive irritability of the digestive organs, hæmorrhages of the lungs, obstetrical cases, convalescence from fevers and the wasting diseases of infancy, such as anæmia, marasmus, cholera infantum, inanition and infantile atrophy. It is especially beneficial in diseases of women where there are exhaustive demands on the system.

CANCER OF THE STOMACH

By J. A. Clark, M.D., Bedford, Pa.

Mr. B—— is a railroad offical high up in the service of the New York Central Railroad. He came to Bedford early in the summer of 1891; his case was thought to be a hopeless one, and was diagnosed by one of the most prominent physicians in New York City to be cancer of the stomach. We kept him alive for days at a time by rectal injections of Bovinine, and when the stomach would bear anything, administered by the mouth, until he was built up sufficiently to take solid or semi-solid food, with Bovinine as a support between; and last fall he was so far recovered as to be able to resume his duties as railroad manager, and this summer (1892) he is still improving.

BOVININE TREATMENT IN BLOOD POISONING.

By Dr. W. H. Parsons, Omaha, Neb.

In St. Louis, a lady had pricked her thumb with some poisonous product, and blood poisoning in its most virulent form supervened, and, in spite of the best efforts of several leading surgeons, the case came to a point where amputation at the shoulder seemed the only alternative. The hand and arm were swollen to their fullest capacity, and honey combed with scores of sloughing ulcers. Upon my advice the hand and arm were dressed six times each day, after having been thoroughly cleansed, with pure Bovinine; the ulcers being packed with soft lint saturated with the same, and the entire arm and hand dressed with it. In thirty hoursa change was manifest, and in sixty hours healthy granulations began to appear, diseased tissue to slough out, and in twelve days her hand and arm were as good as new.

ABSCESS IN EAR.

By F. G. Plummer, M.D., Boston, Mass.

My own baby had an abscess gather and break in the ear. The ear was carefully cleansed, then Bovinine was dropped in, and the auditory canal plugged with cotton. This treatment was repeated three times a day, and in four days the ear was healed.

I have also used Bovinine as a spray in tonsillitis, with excellent results, and found it most satisfactory, when used either as a local or internal nutrient.

SCORBUTUS.

By Dr. T. J. Biggs, Sound View Hospital.

Ellen W——, New Canaan, Conn.; age 26; January 6th, 1897. Symptoms: General weakness, lassitude, and indisposition to mental or physical exertion; skin dry, rough, and of a muddy pallor; face bloated, gums red, swollen and spongy, with tendency to bleed; lips pale, in striking contrast to the unnatural redness of the gums; exceedingly offensive breath; eyes sunken and surrounded with dark blue circles; tissues much wasted—in short, every symptom of undermined and deranged bodily nutrition; completing the picture with a persistent dysentery. The blood was of a decidedly abnormal standard. The patient had received a variety of treatments for this condition during two years, with little or no benefit, as was quite apparent.

January 8th, patient was put on a medical prescription and a teaspoonful of Bovinine every two hours. At the end of a week, she showed decided improvement, and a gain of 1¾ pounds in weight. Bovinine was increased and continued, with steady improvement, until, on February 10th, microscopic examination showed a percentage of hæmaglobin almost normal, and a gain of over a million red cells per cubic millimetre (2,800,000). February 19th, Bovinine again increased until March 8th, when the patient was discharged, in completely restored health, full complement of flesh, face, gums and lips of natural, healthy color and texture, without bloating.

SEVERE CHRONIC OTORRHŒA OF FIVE YEARS' STANDING.

By Dr. T. J. Biggs, Sound View Hospital.

Tim M——, New Canaan, Conn.; age 22; January 3d, 1899; chronic Otorrhœa of five years' standing, result of scarlet fever; had been under treatment by a number of

physicians, as well as at two ear and eye infirmaries, but grew steadily worse. Examination revealed the whole tympanic cavity affected, the mucous membrane hypertrophied and of a yellowish, leathery appearance, exuding foul-smelling-pus; also a larger perforation of the drumhead, sufficient to afford a fair view of the interior of the cavity. The membrana tympani was partially destroyed, but the membrana flaccida remained. There was also a slight necrosis of the bone.

Bowels were first regulated, and a tablespoonful of Bovinine given every two hours. Locally, Bovinine was injected, and then peroxide of hydrogen. After the chemical reaction had ceased, the cavity was syringed with warm Thiersch's solution and dried, Bovinine pure was injected, and a pledget of cotton soaked in glycerine was introduced. All this was repeated every two hours. January 10th, the necrosis of the bone had been cured, the discharge greatly lessened, the hypertrophied mucous membrane reduced, and was red in appearance, the destruction of membrana tympani checked. Continuing the Bovinine applications every three hours, the case rapidly improved, and was discharged cured, February 1st, 1899, having gained 9 pounds in weight.

CASE OF TYPHILITIS

By Dr. T. J. Biggs, Sound View Hospital.

Henry E——, Stamford, Conn.; age 34; March 17th, 1899. Diagnosis: Typhiltis. On examination, found patient suffering with pain and tenderness in the iliac fossa, and along the ascending colon, with some prominence of this region; bowels constipated; there was fever, restlessness, also nausea and vomiting; there was much depression of the vital powers. The only distinguishing point between this and appendicitis was the history of the attack. The patient was put to bed, put on a Bovinine and milk diet, a tablespoonful of Bovinine in milk every two hours, and nothing else allowed in the way of food. He was also purged; hot fomentations were applied over the site of the trouble; and one-quarter of a grain of codena was given every three hours. March 20th, he was better; little or no fever; pain reduced to a soreness. The Bovinine was now increased to a wineglassful in milk

every three hours. From March 20th, he was up for two hours each day. April 30th, he was allowed to take a little exercise on the verandah. May 7th, he was discharged cured, with instructions to be careful for at least a week.

OTITIS MEDIA, MASTOID SINUS AND NECROSIS.

By Dr. T. J. Biggs, Sound View Hospital.

William P——; age 30; American. Diagnosis: Chronic Purulent Otitis Media. Patient entered the hospital June 8th, 1900. Previous history: Two years since had attack of earache, followed by a discharge of pus from the left ear. Under treatment, the acute symptoms rapidly subsided, leaving only a slight discharge, which had continued more or less until the present time. At the time of entering the hospital, the patient was suffering greatly; said that two days previous, while bathing, had got salt water in his ears, causing excessive pain in the left one, which gradually increased up to the time of his entering the hospital.

Examination showed the meatus filled with pus, the drum and membrane perforating tissue over the mastoid much swollen; temperature 104, and general symptoms of pus absorption. He was put to bed, and, under anæsthesia, an incision was made over the mastoid, a little over an inch in length and down to the bone, dividing the periosteum. Some bloody serum but no pus escaped. The mastoid cells were now opened with a small trephine, and a large escape of pus followed. The bone was badly necrosed, and a sinus had formed, opening into the middle ear. The carious portion of the bone was thoroughly cleaned out, during which large quanties of pus escaped, not only from the mastoid cells, but also from the meatus. So extensive was the condition that the prognosis given his friends was a most unfavorable one, it being, in my opinion, impossible to cut short the pathological process. I determined, however, to make a stiff fight of it, feeling that in Bovinine I had the only thing which might accomplish a favorable result. After having thoroughly cleaned out the carious bone, I drilled through into the middle ear and then curetted out the ear, taking as much care as possible to prevent any further injury to the drum. The wound was now cleansed, as well as the ear, with Bovinine and

hydrozone, followed by Thiersch's irrigation, and the entire cavity was packed with iodoform-Bovinine gauze. This was removed in twelve hours, at which time it was found that there were still forming large quantities of pus. I now employed a 25 per cent. solution of pyrozone, followed by Bovinine and hydrozone, and then Thiersch's irrigation. A small piece of gauze was carried through from the middle ear into the cavity of the mastoid process, a canopy of Thiersch's gauze was arranged over the head, and the nurse instructed to apply Bovinine pure every hour and to cleanse with Bovinine, hydrozone and Thiersch's once in three hours. This was continued up to June 14th, at which time the pus formation had ceased and the general appearance of the wound was one of a healthy healing process. The patient's temperature was normal, and he was entirely free from pain. Small pieces of sterilized sponge saturated with Bovinine were gently laid in the cavity of the mastoid process, and Bovinine pure dropped into the ear every hour. The sponge dressings were changed every two hours.

On July 1st, the sponge dressings were discontinued and small chips of decalcified bone were deposited in the cavity, and Bovinine pure was applied every two hours. The nurse was instructed not to wash out the cavity in the mastoid process, but to carefully cleanse the ear every three hours.

On July 10th, the sinus connecting the cavity in the mastoid process with the middle ear closed by a healthy process of healing, and the ear was in a comparatively healthy state. The cavity in the mastoid process was filled with healthy bone tissue, with the exception of a space about the size of a three-cent piece. Bovinine pure was ordered as a dressing every two hours, and the nurse was instructed to cleanse twice in twenty-four hours.

On July 17th, the cavity had entirely filled with new bone, and the wound was healed, with the exception of a space about the size of a split pea. This was dressed three times in twenty-four hours with Bovinine pure, and on July 27th the patient was discharged cured.

Inadvertently I omitted to say that coincident with the local treatment, a wine-glassful of Bovinine was given every three hours in milk. This is of great importance,

as it sustains the patient by supplying perfect nutrition and helps combat the pathological process by bringing up the quality of the blood.

This case I deem one of great interest, for I am sure that if a careful study of statistics on these cases should be made, it will be found that the large majority perish, even in the hands of the most skilful specialists. The Bovinine not only started up rapid and complete repair, but it also completely and thoroughly checked the pus-forming process.

By C. G. SPRAGUE, M. D, Omaha, Neb.

It affords me a great deal of pleasure to give a few words of testimony it favor of the Bovinine, to which you called my attention about one year ago. Previous to that time I was entirely ignorant of the merits of that preparation as an article of *diet*—for as such I regard it—but each day adds new value to it, and I have now no hesitation in saying that for me it has done infinitely more in sustaining life than all other preparations combined.

I might quote clinical cases by the dozen where I believe precious lives have been saved—as in the diseases of children, peculiar to the hot summer months, and all anæmic state of adult life. I have in mind at this moment, several cases of Cholera Infantum, where, but for the intervention of Bovinine, remedies would have been of no avail. A case has but recently been discharged by me of a young lady who had been through the *forcing* process of our high school curriculum until the very life had almost been exhausted—anæmic, depressed, a complete picture of early decline, with non-assimilation of what little food she *did* take, and where drugs seemed utterly useless. And now after three months' use of Bovinine, she has entirely recovered her former strength, and to-day is as fine a specimen of blooming young womanhood as can be found in this city. The result in this case alone—were there no others—would be enough to convince me that the *posibilities* of the preparation are yet in their infancy.

By Dr. W. K. GRAYSON, Butler, Texas.

I have become so much impresssed with the marvelous results obtainable by the intelligent use of Bovinine in nearly every form of disease that I feel it a duty to com-

municate some of the splendid results I have already obtained by its use in my own practice, with a view to interest those of our noble profession who through prejudice or otherwise have not yet given it a trial.

Case 1. Erysipelas of the head and face; face and head enormously swollen; the patient's temperature ranging from 103 to 104½. I cleansed the entire affected surface with peroxide-on-Bovinine, and then applied Bovinine only. The effect was simply marvelous; the pain ceasing shortly after, giving the patient a most refreshing sleep. I prescribed Bovinine, applied with atomizer, every three hours, for twelve hours, and thereafter thrice per day; also administered with wine every two hours. Patient made a splendid and quick recovery.

Case 2. Child, age 4 years; malnutrition, accompanied with gastric irritation; given up as hopeless by previously attending physician. Put it on Bovinine, using atomizer as, in my judgment, the best method of conveying it into the system, and directing the parents to give Bovinine in this way, four times a day, commencing with about teaspoonful doses, combined with fresh cream, and gradually enlarging the dosage; also using in conjunction a hot sponge bath every other night, as hot as could be borne, accompanied with gentle massage and a saline enema. Result: A rapid recovery of an apparently helpless case, and now a finer, healthier child cannot be found.

Case 3.. A lady had gangrene of the hand, supposed to have originated from the bite of a tarantula or centipede, while sleeping; neglect of prompt and proper treatment causing present result. Treatment, peroxide of hydrozone on Bovinine and an antiseptic solution (Thiersch's), with Bovinine externally four times per day. Result: Rapid subsidence of pain, entire removal of all foul odor, rapid healing, and quick recovery.

By NURSE SHOESMITH, Superintendent,
Samaritan Nurses' Home, Durham, England.

I have great pleasure in saying how very useful, nay, invaluable, your Bovinine has proved to us in our work as nurses among the sick poor. We have used it a number of years, and have thoroughly proved its virtues in many different ways. Be it understood that we always give it

with the doctor's consent *only* in all acute disorders. Thus, it has worked excellently in typhoid fever, maintaining the strength of the patient; and in the convalescing stage, when hunger is intense and solid food out of the question, the patient often finds that it allays the sinking or craving for food in a wonderful manner. Also in pneumonia, rheumatic fever, and other cases, where the temperature is high, we have noticed that Bovinine given regularly lessens the great prostration that usually follows excessive temperature. In cases of hæmorrhage from lungs, stomach, etc., we have also used it largely. Other cases in which we find it a great help are children and tiny babies, who, among the poor, seem only to exist, not live. It is wonderful how they pull up and become healthy, strong children on a course of Bovinine. In cases of run-down or overworked people, we find it very useful indeed. Its excellent keeping qualities, moderate price, and palatableness make it most useful to district nurses.

In cases of vomiting it is wonderful also. I have known it retained when ice returned, and the smallness of the dose greatly helps in such cases.

I have recommended it to a large number of people who like to give strengthening things to the poor, and who would give stimulants, which is so often a dangerous thing given indiscriminately. A bottle of Bovinine is absolutely safe, and never fails to do good where feeding and strengthening are required. Consumptives find great benefit from its use, and I have one patient, a sickly man, who suffers much but still works, who carries it with him to his work, and thinks it keeps him going. I have not attempted to wri e a scientific letter, but only one showing how good and useful we find Bovinine in our daily work in the homes of the sick poor.

REPORT ON THE USE OF BOVININE.

AT THE GENERAL HOSPITAL OF MEAUX, SEINE-ET-MARNE, FRANCE.

By Dr. Dufraigne, Surgeon-in-Chief.

[*Translation.*]

"Having read the eulogistic testimonials of American and English physicians concerning Bovinine, and this preparation appearing so familiar to the foreign medical profession, we thought it advisable to give it a fair trial, and that, in spite of our general distrust of all the medical specialties coming to our notice from the other side of the ocean."

"Our first trial having been found successful, we felt no hesitation in giving a wider field to our experiments and we must say that these experiments fully confirmed the happy results of our first trial, and now we may safely declare that the medical value of Bovinine, and above all its nourishing value in certain particular cases, cannot be doubtful, for it is an ascertained fact that the Bovinine preparation surpasses in its qualities all the similar so-called preparations known to us. Now let us relate a few cases which will demonstrate the efficiency of Bovinine beyond all doubt."

"A patient, aged 40, entered our hospital in May, to be treated for a diffuse phlegmon of the hand and left forearm. Continued antiseptic irrigation seemed at first sufficient to check the inflammation, but soon the articulation of the elbow and the lower part of the arm became invaded, and two large incisions were made on the lower surface of the forearm, allowing that part to be drained, and revealed an extensive destruction of muscular tissues."

"The patient was becoming weaker and weaker, and a large slough over the sacrum with abundant discharge gave further evidence of the considerable loss of vitality. We had then before us a case of septicæmia, and amputation was decided on above the elbow, under very critical circumstances in consequence of the generally debilitated state of the patient, who had not been able to take any food for several days. We had then a good opportunity for testing Bovinine, and to see for ourselves if that preparation could justify its reputation. The patient took

Bovinine with ease, and a few days after (having taken nothing but Bovinine) gradually recovered his strength; delirium and fever disappeared, the mental state was better; the system being less debilitated absorbed more nourishment, and a general improvement followed. The terrible effects of septicæmia were conquered. To-day the patient is able to walk; he is convalescent."

"This splendid result was obtained by the easy assimilation of such a vital extract as is contained in Bovinine."

"A young patient, aged 15, suffering with esteo-myelitis, half of the lower end of the diaphysis of the tibia being involved, we were obliged to remove a large sequestrum of the anterior surface of the bone and to curette the posterior face; in short, to make a deep excavation of that region. The patient, being much debilitated before and especially after this severe trial, Bovinine was administered, 15 grammes per day, and for eight days the patient took it well."

"What is remarkable, regeneration of the bones rapidly became apparent, and when the patient could take the ordinary regimen of food, we reduced by half the dose of Bovinine. The result is satisfactory."

"Another patient of a delicate constitution, whose left thigh had been amputated, was fed on Bovinine alone for several weeks. By the help of that preparation, the system, which had been so debilitated before the operation, in consequence of a tumor of the knee, which has resisted treatment for ten months, has regained its vigor. The patient will soon be able to leave the hospital in excellent condition."

"Therefore, we may condense and say, judging from these cases taken at random, and also from many others, which have given the same good results (and without, according to that preparation, any therapeutic value), that Bovinine remains a powerful re-building factor for debilitated patients after a long illness; for patients after surgical opertions; for patients digesting their food with difficulty; in an accidental or traumatic case, or after a constitutional illness; as the results obtained in our medical service and other wards of our hospitals have thoroughly demonstrated. These results are the consequence of the vital principles contained in Bovinine, principles carefully

studied and analyzed by the pharmacists of our establishment with reference to their qualitative and quantitative value, promiment among which are fibrin, casein, hæmoglobin, peptones and the albumen of the egg."

(Signed), DUFRAIGNE.

DIRECT BLOOD SUPPLY INSTEAD OF ABORTIVE FEEDING.

"Oxidation in the lungs takes place in proportion to the amount of space in which the air comes in contact with the blood. When from any cause an extended portion of the lung becomes obstructed or the tissue thickened, so that the oxidizing process is to a degree frustrated, nutrition is likewise frustrated, and poisons necessarily accumulate in the blood. Under these circumstances, when the blood is already surcharged with debris, which it handles with difficulty, food crowded into the circulation only aggravates the condition, instead of relieving it.

"It is popularly believed that if food is digested and taken into the circulation, that is all that is necessary; but food elements — even after they have undergone thorough transformation by the digestive fluids, have been absorbed into the lymphatics, and carried into the blood-vessels—are not yet blood. They are still food, and have done the body no good. There are two conditions yet to be fulfilled before this food may be of benefit to the system, viz: a demand on the part of the body for it, and nutritive force sufficient to convert such food as is demanded into living tissue."—Dr. O. G. Place, in "Good Health."

Hence the small value, both of the food preparations, however ingenious, and of the digestive aids, however effectual, to get the digested food into the blood. For, this demand, which is dependant on healthful activity, external and internal, and this vital force, which resides in the blood cells and is measured by their plenitude and oxidizing and vitalizing power—are the very things that neither medicine nor diet nor effort nor change of air, can enable the exhausted functions to reproduce. Every day the tubercular infection eats away more of the lung tissue and shuts off more of the breath of life from the languishing and non-proliferating blood cells, which thus daily appropriate less and less nutriment and transform it into

less and less of living tissue in every part and organ and nerve of the system; a process which is well called consumption, for the victim is rapidly consumed by starvation; not from want of food (with which he can do nothing), but from want of breath through want of lungs. There is no help in him, and no human art or power can engender help in him; it must be put in! His supply of breath and blood and life-in-blood, is daily ebbing away, and there is nothing in him to staunch the flux or to replace an iota of the daily loss. What then can be done? Just one thing and one only. There is plenty of blood to be had, as good as his ever was, and much better. And experience has proved that it can find direct and easy entrance to his veins, in all needful volume, through any part of the alimentary canal, upper or lower; and also, that in the veins it will do the whole work of full and healthy blood, ready oxidized in spite of inadequate breath, ready-vitalized and cell-abundant in spite of exhausted vital energy. At the same time, the lung deficiency can be supplied artifically by the modern improved oxygen-inhalation, and the unequaled bactericidal (and also healing, not destroying) power of oxygen will thus arrest the proliferation of bacteria and sanitate their poisonous products and the putrid residua of broken-down tissue.

What impenetrable stolidity, to turn away from these perfect supplies at hand, and seek, in the chemical elaboration of poisons, some recondite and hypothetical "dead shot" for bacteria, that can do nothing more at any rate, unless it shoots the patient, too!

A medical correspondent, Dr. B——, gives us another disclosure of the power of blood upon blood, which has not yet been mentioned. We have before referred to the microscopical observation of Dr. Brakenridge, of Edinburgh, in transfusion of blood, that the injected corpuscles not only fulfil their common mission in building up the tissues, but also act upon the enfeebled and decimated native corpuscles with power to rejuvenate and multiply them. The new observation of Dr. B—— throws light upon the nature of this mysterious contagion of vital power. It is understood that the nucleus of the blood cell

or corpuscle is electrically positive, while the cortex of the same is negative, so that by the laws of physics these two should neutralize each other, to the death and disintegration of the corpuscle, but for a certain tension or contractility of its structure which seems to restrain such (premature?) escape of energy. The moment this tension begins to be relaxed, however, the energy begins to be dissipated; in other words, the vitality of the cell is impaired; its form and substance shrink, and its function fails, whether for resistance to intruding forces, as germ toxins, or for the repair of wastes or lesions.

BOVININE

is nothing less than the consummate product of the nutritive process in the living body. It is not to be confounded with mere nutrients or foods, however elaborated artificially, since it out-classes them by at least three stages of development possible only in the living body—*assimilation*, *composition*, and *vitalization*, already completed. Hence, among the mere "foods," there can be nothing so completely fitted to the wants of humanity as Bovinine. It includes, of necessity, all the nutritive principles which enter into the component parts of the human body, and being already perfect and perfectly preserved blood, needs no further elaboration in the system, but goes directly to every part, leaving the stomach entirely at rest, as it so often absolutely needs to be left, and at the same time keeping up a perfect nutrition of the entire body.

Bovinine is Nature's Vital Essence itself under another name: supplying therefore, in the very proportions and preparations of Nature, the proper elements of the vegetable, animal and mineral kingdoms, perfectly combined and compounded, all ready for absorption into the veins and tissues. More than this: in Bovinine the vital corpuscles are preserved intact, and retain all their oxygen-carrying propreties. No one who can use a microscope should rest in any doubt on this point.

Thus in Bovinine is found all that Nature intended for the perfect nutrition, and vitalization as well, of the entire animal organism. It is therefore indicated in all diseased conditions of the body and mind.

There is no condition of the stomach or system so delicate, debilitated, or sensitive, but that Bovinine may be administered happily and successfully, with due regard to proper dosage, and the proper avenue chosen, according to the conditions of the case.

A PRESCRIPTION.

A New England correspondent communicates his favorite formula for the administration of Bovinine, as follows: Bovinine 1 oz., milk 3 ozs., lime water 3 ozs.; at intervals as indicated by condition of patient, and according to age.

SCIENTIFIC LIGHT ON NOURISHING THE SICK.

The worthless rinsings of beef that obtained universal vogue in sick-room regimen prior to the modern development of the medical sciences, have become a scoff and by-word among instructed physicians of the present day. And yet, they still retain a traditional hold in the profession itself, that makes the scientific exposure of their real constitution exceedingly important. For any in whom this tradition may still linger, it is a professional duty to make a patient study of the threefold series of independent analyses presented in the London health journal, *Food and Sanitation*, and copied below. It will be seen that these analyses are mutually critical and corrective; are by high modern authorities in both hemispheres; and are therefore absolutely conclusive.

In a series of analyses and experiments made in 1891 by Mr. R. H. Chittenden, Professor of Physiological Chemistry at Yale University, the results of which were communicated to the Philadelphia County Medical Association, on May 13th of the same year, Mr. Chittenden gave the following as the percentage composition of Liebig's Extract of Beef, Valentine's Meat Juice and Bovinine. The figures were:—

	Liebig's Extract of Beef. 2 ozs. Cost 1 s. 2½ d.	Valentine's Meat Juice. 2 ozs. Cost 3 s.	Bovinine 2 ozs Cost 11 d.
Water (at 110 C.)	20.06	60·31	81·09
Solid matter	79·94	39·69	18·91
Inorganic constituents	24 04	11·30	1·02
Phosphoric acid P2 O5	9·13	4·00	0·03
Fat (ether extractives)	0·91	0·78	1·49
Total nitrogen	9·52	2.68	2.43
Soluble albumen coagulable by heat	0·06	0·55	13·98
Total proteid matter available as nutriment	0·06	0·55	13.98
Nutritive value as compared with fresh, lean beef (lean beef—100)	0·30	2·80	72·40

These analyses were, as regards Leibig's and Valentine's Meat Juice, practically confirmed by results published by Mr. Jesse B. Battershall, Ph. D., F. C. S., chemist, United States Laboratory, New York. Mr. Battershall in FOOD ADULTERATION, page 256, gives the following analyses:—

	Liebig's Extract.	Valentine's Meat Juice.
Water	18·27	50·67
Organic Substance	58·40	29·41
Ash	23·23	11·52
Soluble Albumen	0·05	—
Alcoholic Extract	44·11	—
Phosphoric Acid	7.83	3·76
Potassa	10·18	5·11

Readers of *Food and Sanitation* do not need to be told that we accept nothing on hearsay or upon testimonials. We believe that for public safety every food, every drug, and above all, every patent preparation ought to be subject to analysis, as we are now subjecting every patent food offered to the medical profession and the public. The results, be they favorable or the reverse, ought to be honestly stated, the more so as few medical men have the appliances, the time and the training necessary to make individual investigations. We shall, therefore, in investigating Mr. Chittenden's and Mr. Battershall's analyses, deal with them in a plain, matter-of-fact manner, and entirely upon their merits, however unexpected may be the results and astonishing the conclusions. Divesting thus our minds of cant, we have first to note that Mr. Chittenden gives the soluble albumen as 0.06, whilst Mr. Battershall finds 0·05 per cent. in Liebig's Extract. In Valentine's Meat Juice Mr. Chittenden finds 0·05, *i. e.*, a little over one-half per cent. On the assumption, therefore, that Valentine's Meat Juice is worth as a nutrient 3s., Bovinine (containing 13·98 per cent. of available nutrient matter) is worth £3 16s. 3d. per bottle of two ounces, although Bovinine sells at 2s. 9d. per six ounces (= 11d. for 2 ounces), as against 3s. charged for two ounces of Valentine's Meat Juice. A similar calculation with regard to Liebig's Extract discloses the fact that if Liebig's be worth 1s. 2½d. for 2 ounces, Bovinine is worth, on Mr. Chittenden's analysis, the sum of £14, 1s. 6½d. per two ounces.

So much for Mr. Chittenden and Mr. Battershall. Our analyses of both Liebig's and Valentine's preparations show that they are more valuable in nutrients than the

analyses above given disclose, and that the results of Mr. Chittenden and Mr. Battershall require correction; the gelatine and albumen in Liebig's being 1·35 per cent., and in Valentine's 0·93 per cent. For the purpose of an accurate comparison, we give our own full analysis of the three preparations in a comparative form:—

	Liebig's Extract of Beef 2 ozs. 1s. 2½ d.	Valentine's Meat Juice. 2 ozs. 3s.	Bovinine 2 ozs. 11d.
Water	16·87	55·24	Water and Alcohol 78·42
Fat (Ether Extract)	3·04	4·80	0·09
Gelatine and Albuminoids	1·35	0·93	13·32
Peptones	8·20	1·55	0·00
Creatine and Meat Extractives. (almost non-nutritious)	47.32	18·27	0·55
Salt	5·08	2·62	1·04
Mineral Matters, Salts of Flesh, Phosphates, etc.	17·46	8·51	0·57
Non-nitrogenous Extractives	0·68	8·08	6 01
	100·00	100·00	100·00

Calculated comparatively on our own analyses, the albuminoid values work out as follows, taking Valentine's Meat Juice as the basis for the calculations;—Valentine's, containing 0·93 albuminoids, costs 3s.; Liebig's, with 1·35, costs 1s. 2½d.; and Bovinine, with 13·32, cost 11d. If, therefore, Valentine's be worth 3s., Liebig's is worth 4s. 4d. instead of 1s. 2½d., and Bovinine is worth 43s. To avoid the possibility of error, we have had duplicate analyses made of Bovinine. The second analysis gave the following results:—

BOVININE.

Water and Alcohol	80 70
Fat (Ether Extract)	1·21
Gelatine and Albumen	12·92
Peptone	0·62
Creatine and Meat Extractives	0·21
Salt	0·78
Other Mineral Matters	0·08
Non-Nitrogenous Extractives	3·48
	100·00

It will be noticed that there is a slight difference in the figures, but this is to be expected in any food preparation, which must vary to some extent. The lesson to be learnt from these analyses, and from the others already published in this series of articles, is, that the system of manufacture of patent food preparations needs revolutionizing, and that no medical man can afford to neglect the study

of the real value of the meat extracts, etc., he prescribes. At one time the Liebig and Valentine preparations were undoubtedly the best that were placed at the service of the physician. Instead of advancing with the progress of science, the makers have been content to rest where they were when the science of foods was in its infancy. Tradition has invested them with a halo of testimony no doubt honest enough in its time, and with respect to some of the most largely prescribed patent foods, that tradition has been handed from teacher to teacher, from father to son, and from school to school, without any one being iconoclastic enough to examine into its *bona fides*. It is dangerous for the medical man, above all men, to take anything on trust. Dr. W. M. Grailly Hewitt, in an address to the British Medical Association, emphasized that danger in weighty words, saying:—

"For the last six or seven years I have tested by carefully inquiring into the past history of patients mostly suffering from some uterine or ovarian disease, or some affliction incidental to child-bed, and these conclusions have stood the test of this long-extended inquiry. I have to state the important conclusion that a continuous insufficiency of food, or what may be called a 'chronic starvation,' more or less intense in different cases, was found to have existed universally. Consequently, I have naturally been led to consider chronic starvation as almost important factor in disease."

Experiments have proved that an animal fed upon Liebig's extract of beef alone, will succumb more readily than a like animal entirely deprived of food. The claims advanced, therefore, in favor of preparations of Liebig's Extract of Beef, Meat Juices, and Beef Essences that they represent 30 or 40 times their weight of lean beef is absurd inasmuch as such preparations are practically devoid of nutritive value, and the waste creatine and extractives (at times half the bulk of the preparation), although of some value as stimulants, have the disadvantage that their use in many diseases is positively dangerous. It is time, therefore, that such preparations were relegated to the kitchen for use as flavoring agents—with which no one would quarrel—and that their makers cease to represent them to the public as foods. What, for example, are we to think of the following announcement accompanying Brand's Essence of Beef—

"BRAND & CO.'S ESSENCE OF BEEF.

"This essence consists of the juice of the finest beef, extracted by a gentle heat, without the addition of water or any substance whatever, by a process first discovered by ourselves in conjunction with a celebrated physician.

"In cases of extreme exhaustion or urgent danger, a teaspoonful may be administered as often as the patient can take it; in less urgent cases it may be taken as required with a small piece of bread and a little wine."

—in the light of the following analysis:

	Brand's Essence of Beef. Cost 1s. 2d.
Water	91·23
Fat (Ether Extract)	0.18
Galatine and Albuminoids	1 25
Peptones	2·54
Creatines and Meat Extractives, almost non-nutritious	3.96
Salt	0.45
Other Mineral Matters	0·39
Non-nitrogenous Extractives	None.
	100.00

or of the assertions *re* Liebig's Extract—that it "makes the most nourishing beef tea?" Again, if we take the nutrient values of the three preparations, as compared with fresh lean beef—

Reckoning lean beef as equaling	100·00
Liebig's equals only	0·30
Valentine's equals only	2·80
Whilst Bovinine equals	72·40

If any reader feels too busy to follow the close analytical details of these three reports, let him fix his attention and rational confidence on the summary footing, and the demonstrated difference in value between Liebig's Extract (*three one-thousandths*) and Bovinine, *seven hundred and twenty-four one-thousandths,* of the nutrition in beef!

BEEF TEA AS A FOOD

By Dr. CHARLES E. PAGE, Boston, Mass.

Were I shut up to a choice between a portion of beef tea and one of pure and simple urine, I should take the tea. It is beyond question less disagreeable in odor and taste, and there is usually a difference in appearance between the two, but not always. The worse the quality of the urine, the more heavily it is charged with waste and effete matter, the closer its resemblance to beef tea, which one eminent physician has called a ptomaine solution. In our boyhood days our grandmothers and the good old women nurses often employed a "favorite prescription" called chamber-lye and molasses (sweetened urine), but no matter how sweet they mixed it none of us ever became fond of it, and we never took enough of it, perhaps to do us any material harm. But this cannot be said of the

victims of beef tea, when in sickness they take it in considerable quantities day after day, in place of food, as is still quite common in hospital and private practice, simply, of course, because the truth of the matter has not yet become generally known.

When made in the most approved manner, beef tea is composed of about ninety-seven and one-half parts of water and two and one-half parts of the waste and effete matter of some dead creature. It has, without doubt, some nutritive value, but this is so slight in amount, and its toxic elements so mischievous, that it is doubtful if life would be as long sustained on beef tea as on pure water.—*New York Medical Times.*

MEAT EXTRACTS

PREPARED BY HEAT, BEEF TEAS, ETC., HAVE LITTLE OR NO FOOD VALUE, AS WILL BE SEEN FROM THE FOLLOWING OPINIONS.

Many "meat extracts," "essences," etc., are upon the market, a large portion of them containing no food or nutritive properties; for instance the highly-prized "Beef-Tea," popularly supposed to have great food virtues, but actually containing none whatever, being merely a temporary stimulant, or flavor, upon which a patient would soon starve.

In the *British Medical Journal*, Dr. MILNER FOTHERGILL says that "a patient dying of exhaustion is generally dying of starvation. We will give him Beef Tea, calf's foot jelly, alcohol, seltzer and milk, that is, a small quantity of sugar and milk, and some fat. But the jelly is the poorest sort of food, and the Beef Tea a mere stimulant. The popular belief that Beef Tea contains 'the very strength of the meat' is a terrible error; *it has no food value whatever.*"

Professor Robert Bartholow, of the Jefferson Medical College, Philadelphia, an undoubted authority in such matters, says: "Nothing has been more conclusively shown than that Beef Tea is not a food. It is nothing more than a stimulant. *All extracts of the nature of Beef Tea carry but a portion of the properties of the meats that they are made of, and in most cases are of no avail as they cannot be retained by the enfeebled stomach.*

Extract from a report on several descriptions of meat preparations by Dr. A. Stutzer, of Bonn, Director of the Imperial Agricultural and Chemical Laboratory of Rhenish Prussia:

"The beef extract made from Liebig's receipt is not an article of food proper, as containing no more than 7 per cent. of nitrogenous matter; nor did the illustrious professor introduce it as an article of food destined to nourish the human body. *Liebig's idea was not to produce a nutritive article, only a relish.*"

Dr. Stutzer further exposes the often exposed superstition regarding the nourishing powers of Beef Tea. He shows conclusively that one would have to take a half-gallon of Beef Tea before he could get as much nourishment as is contained in a quarter of a pound of steak. He also calculates that a patient would be obliged to consume eighty pints of that deceptive liquid, Beef Tea, prepared from eighty pounds of steak, to obtain the flesh-forming and blood-producing constituents in *one bottle* of Bovinine.

Bovinine, containing as it does 20 per cent. of coagulable albumin, is *not* to be classed with preparations of the above character.

EXPLANATION OF TERMS USED

By Dr. T. J. Biggs and Others, and Combinations with Bovinine Mentioned in Clinical Reports, are Given Below.

"BOVININE GAUZE"	Signifies sterilized gauze saturated with Bovinine.
"IODOFORM-BOVININE GAUZE"	Signifies sterilized gauze saturated with "Iodoform-Bovinine."
"PEROXIDE OF HYDROGEN ON BOVININE"	These are synonymous terms.
"PEROXIDE ON BOVININE"	*See* General Instructions, p. —. Also Prof. Pratt's treatment, pp. 426—430.
"BOVININE-PEROXIDE"	
"BOVININE-PEROXIDE REACTION"	
"HYDROZONE ON BOVININE"	Used instead of Peroxide of Hydrogen, and in like manner.
"BOVININE-HYDROZONE"	
"BOVININE-HYDROZONE REACTION"	
"BOVININE-TAMPONS"	Tampons saturated with Bovinine.
"BOVININE PURE"	Signifies Bovinine alone.
"THIERSCH"	Synonymous terms. *See* formula below.
"THIERSCH DRESSING"	
"THIERSCH SOLUTION"	

Combinations with Bovinine.

In the surgical treatment and dressing of various lesions, highly satisfactory results have been reached by combining Bovinine with the antiseptics or medicaments most appropriate to the case, properly proportioned and chemically compounded. We present the following formulæ, which have been worked out under the direction of medical experience by an able chemist, and have been successfully tested in practice for the simultaneous and composite action of the ingredients.

Bovinine with Thymol.

Parts:—Bovinine, 940; Thymol, 25; Alcohol, 20; Glycerine, 15.

Thymol is dissolved in warm alcohol; then glycerine is added; when cold the thymol solution is added, little by little to the Bovinine. By taking half as much again of glycerine, the work is facilitated; but care must still be taken to mingle very slowly, as otherwise a precipitate of albumen will follow.

Bovinine with Iodoform 2 Per Cent.

Parts:—Bovinine, 88; Iodoform, 2; Ether, 5; Gum Acacia, 5.

In preparing the 2 per cent. iodoform and Bovinine, little trouble is met with. There is absolutely no change taking place in the Bovinine proper.

Bovinine with Iodoform 4 Per Cent.

Parts:—Bovinine, 88; Iodoform, 4; Gum Acacia, 8.

The 4 per cent. emulsified mixture requires more care. The iodoform is triturated with ether, the acacia is added, and an emulsion is prepared with the Bovinine.

It is worthy of note that in these compounds the obnoxious odor of iodoform is completely masked.

"Thiersch Dressing."

Parts:—Salicylic Acid, 1; Boracic Acid, 8.

Dissolve one teaspoonful in one quart of water, when wanted. *Use but half this strength for the eye.*

Plain Truths, Without Boasting.

Bovinine is not an experiment. Neither is it merely "a very good thing." It has no equal in everyday practice. It is absolutely unique. Bovinine is an actual necessity as an aid to treatment, in almost any case which comes under the practitioner's care, from the infant to the aged.

In other words, Bovinine is Nature's own life principle, and there is, therefore, a certainty of obtaining satisfactory results from its use, in the most critical conditions, and when everything else has failed completely It is simply impossible for it to be otherwise, and its action is so prompt and pronounced as to astonish the most sceptical.

Thousands of medical men have prescribed Bovinine in an almost unlimited range of treatment, for the past 24 years, and many speak of its action as a "continual revelation" to them.

Those who do not make use of so valuable a preparation, are losing the greatest aid to treatment yet presented to the profession.

We invite and challenge the severest and most exhaustive trials of Bovinine. To make such a proposition (appealing as we do to the Profession only) without first having proved its value and reliability, and that its proper use will always more than substantiate our claims for it, would be both foolish and suicidal.

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Published by
The Bovinine Company,
NEW YORK.

JANUARY, 1902.